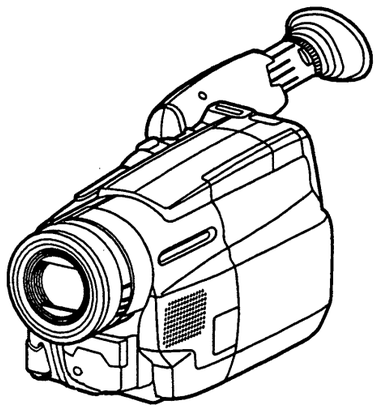
HITACHI

SERVICE MANUAL



TK | No.6710E

VM-E535LA/E635LA
VM-H835LA

TH MECHANISM

Manuals related to the VM-H835LA/ VM-E635LA/VM-E535LA

This model uses a TH MECHANISM.
Refer to the "TH MECHANISM Servise Manual (No. 6406E)" for the TH MECHANISM.

This manual also includes the exploded view and parts list of the VM-ACE3A (AC adapter/charger).

8
Hi8

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

8mm VIDEO CAMERA/RECORDER

April 1997 Image & Information Media Systems Division, Tokai

CAUTION (COLOR LCD EVF)

LCD display; the liquid crystal display (LCD) panel is mode by highly precise technology.
More than 99.99% of its picture elements (pixels) are effective, but some (less than 0.01%) may appear as colored bright dots. This mode not indicate a fault as the LCD panel stretches the limits of current technology.

CAUTION (CRT EVF)

Be careful of the section painted in white on the electronic viewfinder circuit board as it generates a high voltage.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts have special safety-related characteristics. These are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for a higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual. Electrical components having such features are identified by marking with a ⚠ on the schematics and the parts list in this Service Manual. The use of a substitute replacement component which does not have the same safety characteristics as the HITACHI recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards. Product safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current HITACHI Service Manual. A subscription to, or additional copies for, HITACHI Service Manual may be obtained at a nominal charge from HITACHI SALES CORPORATION.

X-RAY RADIATION

The primary source of X-ray radiation in this viewfinder is the picture tube. The tube used in this viewfinder is specially constructed to limit X-ray radiation emission. For continued X-ray radiation protection, the replacement tube must be same type as the original, Hitachi approved one.

How to discriminate the "TYPE" identifications in the manual

The parts and circuits are identified by "TYPE" in this manual to discriminate the differences between models. The TYPE numbers are the same as the model numbers. The table below shows how to read the type identifications.

TYPE identification	Model name
TYPE 535	VM-E535LA
TYPE 635	VM-E635LA
TYPE 637	Not used
TYPE 835	VM-H835LA
TYPE 837	Not used

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This describes only the differences from the "TH MECHANISM Service Manual (No.6406E)" issued previously.

CHAPTER 1 GENERAL INFORMATION

SPECIFICATIONS

General Specifications	
Power requirements:	7.2V DC
Power consumption:	4.4W (when recording/LCD monitor OFF) (For VM-H835LA) 5.5W (When recording/LCD monitor ON) (For VM-H835LA) 4.3W (when recording/LCD monitor OFF) (For VM-E535LA/E635LA) 5.4W (When recording/LCD monitor ON) (For VM-E535LA/E635LA)
Dimensiond:	4-1/8"W × 4-1/2"H × 9-7/16"D (104mm × 115mm × 239mm)
Weight:	2.03lbs(approx. 920g) without battery pack or cassette
Operating temperature:	32 °F - 104 °F (0℃ - 40℃)
Storage temperature:	-4 °F - 140 °F (-20℃ - 60℃)
Video Recorder Specifications	
Format:	8mm
Record/playback:	Two video record/playback heads
Video signal:	EIA standard NTSC color
Tape speed:	14.3mm/sec
Video input:	1.0Vp-p, 75 ohm (For VM-H835LA)
Video output:	1.0Vp-p, 75 ohm
Audio input:	-7.8dBs (316mVrms) (For VM-H835LA)
Audio output:	-7.8dBs (316mVrms)
Fast forward/rewind time:	Less than 8 minutes with P6-120 cassette
Camera Specifications	
Scanning:	525 lines/60 fields/30frames
Required minimum illumination:	1 lux (8 lux measured by EIA method) (For VM-H835LA) 0.8 lux (4 lux measured by EIA method) (For VM-E535LA/E635LA)
Pickup device:	1/4" C.C.D
Lens diameter:	46mm

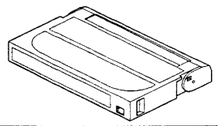
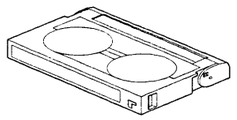
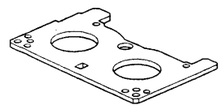
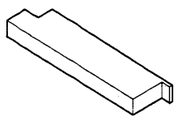
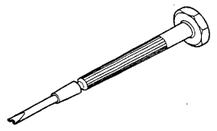
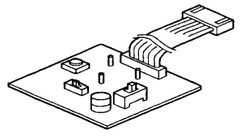
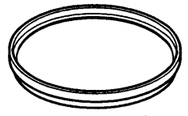
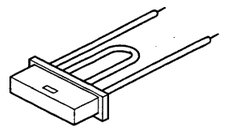
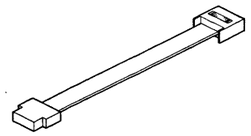
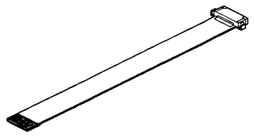
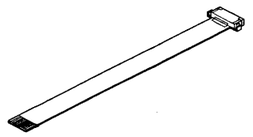
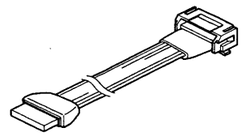
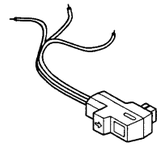
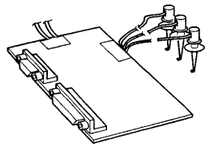
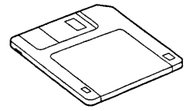
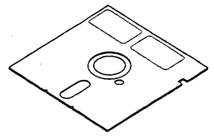
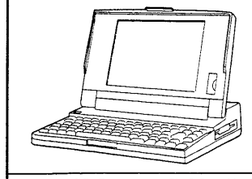
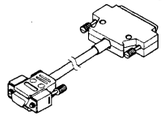
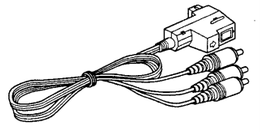
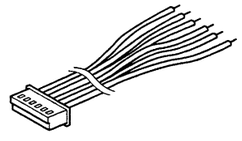
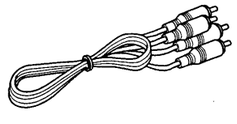
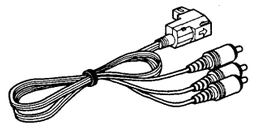
COMPARISON OF FEATURES

	ITEM	VM-E535LA/E635LA/H835LA	VM-E625LA/H725LA/H825LA
GENERAL	POWER REQUIREMENTS	7.2V DC	6.0V DC
	POWER CONSUMPTION	5.4Watts (For VM-E535LA) 5.4Watts (For VM-E635LA) 5.5Watts (For VM-H835LA) (when recording/LCD monitor ON)	7.3Watts (For VM-E625LA) 7.7Watts (For VM-H725LA) 7.8Watts (For VM-H825LA) (when recording/LCD monitor ON)
	DIMENSIONS (W × H × Dmm)	104 × 115 × 239	118 × 120 × 211
	WEIGHT	Approx. 920g	Approx. 1050g (For VM-E625LA) Approx. 1040g (For VM-H725LA) Approx. 1050g (For VM-H825LA)
	OPERATION TEMPERATURE/ HUMIDITY	32 ℉ - 104 ℉	Same as left
	STORAGE TEMPERATURE	-4 ℉ - 140 ℉	Same as left
VIDEO	FORMAT	8mm (For VM-E535LA/E635LA) 8mm (Hi-8) (For VM-H835LA)	8mm (For VM-E625LA) 8mm (Hi-8) (For VM-H725LA/H825LA)
	RECORD/PLAYBACK SYSTEM	2 HEADS + Flying Erase HEAD	Same as left
	TAPE SPEED	SP : 14.3mm/sec	Same as left
	F.F/REW TIME	Less than 8minutes With P6-120 cassette	Same as left
	HEAD WEEL	40mm	Same as left
	BASIC CHASSIS TYPE	TH MECHANISM	Same as left
CAMERA	REQUIRED MINIMUM ILLUMINATION	1 lux (VM-H835LA) 0.8 lux (VM-E535LA/E635LA)	2 lux (VM-H725LA/H825LA) 1 lux (VM-E625LA)
	CAMERA DEVICE	1/4" C.C.D	Same as left
	LENS DIAMETER	46mm	Same as left
	ZOOM RATIO/APERTURE	16 : 1 (4mm - 64mm) / f1.6	12 : 1 (4mm - 48mm) / f1.6
	ZOOM SPEED	1 SPEED	Same as left
OTHER FEATURES	ELECTRONIC VIEWFINDER	CRT (Black & White)	Same as left
	ELECTRONIC IMAGE STABILIZER	YES (For VM-E635LA/H835LA)	YES (For VM-E625LA/H825LA)
	ELECTRICAL ZOOM	MAX: × 130 (86 × 1.5)	MAX: × 36 (24 × 1.5)
	INSTANT (INST.) ZOOM	YES (× 1.5)	Same as left
	AUTOFOCUS SYSTEM	VIDEO AF	Same as left
	PROGRAM AE (SHUTTER SPEED)	YES (Program AE only)	Same as left
	TITLER	YES (2 LINE)	Same as left
	AV INPUT FUNCTION	YES (For VM-H835LA)	YES
	S-CONNECTOR OUTPUT	YES (For VM-H835LA)	YES (For VM-H725LA/H825LA)
	CAMERA DC LIGHT SHOE	NO	YES
	MICROPHONE	STEREO (For VM-H835LA) MONAURAL (For VM-E535LA/E635LA)	STEREO (For VM-H725LA/H825LA) MONAURAL (For VM-E625LA)
	FADE	YES (White/Wipe/Zoom/Black & White)	YES (White/Wipe/Zoom)
	DATE SERCH	YES	Same as left
	16 × 9 MODE	YES	Same as left
	AUTOMATIC WIND CUT	YES (For VM-H835LA)	YES (For VM-H725LA/H825LA)
	AUTOFOCUS/MANUAL FOCUS	SELECTIVE	Same as left
	OPTICAL CONNECTION	NO	YES (For VM-H825LA)
	LCD DISPLAY	YES (3-inch)	Same as left
ACCESSORIES	AC ADAPTER/CHARGER	VM-ACE3A	VM-AC85A
	AV OPTICAL WIRELESS RECEIVER	NO	VM-IR20A (For VM-H825LA)
	BATTERY PACK	VM-BPL13	VM-BP84A
	REMOTE CONTROL	VM-RM38A (For VM-H835LA) VM-RME311A (For VM-E535LA/E635LA)	VM-RME70A
	EASY EDIT REMOTE CONTROL	NO	VM-RM20EDA

COMPARISON OF MAIN CONTROL ICs

ITEM	VM-E535LA/E635LA/H835LA		VM-E625LA/H725LA/H825LA	
SENSOR/GYRO				
CCD SENSOR	ICX206(Normal)/ICX208(Hi-8)	(IC1001)	ICX068(Normal)/ICX086(Hi-8)	(IC1001)
GYRO(VERT.)	ENC-05EA-02	(IC1401)	ENC-05EA-02	(IC1401)
GIRO(HORIZ.)	ENC-05EA-02	(IC1402)	ENC-05EA-02	(IC1402)
GYRO AMP	NJM062M-TE1	(IC1403)	NJU7032M	(IC1403)
GYRO RESET	TC4W66F	(IC1404)	Same as left	
PROCESS				
CDS/AGC	HD49332F	(IC1101)	HA118184F	(IC1101)
A/D CONV.			HD49319A	(IC1102)
DIGITAL PROCESS	HG51CS035TE	(IC1102)	HG51CS035TEA	(IC1103)
DRIVE PULSE GEN.	µPD16510GR	(IC1103)	µPD16510GR	(IC1104)
DIGITAL µP (D-µP)	HD6433042ST-E3	(IC1104)	HD6433042ST13F	(IC1106)
EEP-ROM	MX25S67MR	(IC1105)	MX25S67MR	(IC1107)
AUTOFOCUS				
F.DET/IRIS DRIVE	UPC5023GS-105	(IC1201)	Same as left	
ZOOM MOTOR DRIVE	MPC17A34ZVM	(IC1301)	MPC17AT85VM	(IC1301)
FOCUS MOTOR DRIVE			MPC17AT85VM	(IC1302)
SYSTEMCONTROL/SERVO				
SYSTEM/SERVO CONTROL µP	CXP87240-117R	(IC0901)	CXP87240-110Q	(IC0901)
BACK-UP DET	S84233FS	(IC0902)	S84206F	(IC0902)
CHARA.GEN.	BU6229FV	(IC0904)	XLU5949AFS	(IC0904)
LEVEL SHIFT	———		HD74HCT125T	(IC0903)
LEVEL SHIFT	SN74AHCT126PW	(IC0905)	———	
ATF	UPC5023GS-122-E1	(IC0601)	UPC5023GS-079-E1	(IC0601)
CYL. MOTOR DRIVE	LB1950V-TLM	(IC0631)	LB1888V	(IC0631)
LOADING MOTOR DRIVE	BA6417F	(IC0671)	Same as left	
CAPST. MOTOR DRIVE	LB1881V (On the capst. motor)		Same as left	
AUDIO				
AUDIO PROCESS	HA118193F(Stereo) HA118193F-01(Monaural)	(IC0401)	Same as left	
DC-DCCONVERTER				
PWM	TL1464IPT	(IC0551)	BA9735KV	(IC0551)
PRE AMP				
VIDEO HEAD SW	HA118189MPER	(IC0101)	Same as left	
PHASE EQ/FM PEAK	UPC5023GS-101-E1	(IC0102)	Same as left	
LUMINANCE/CHROMA				
LUMA/CHROMQA PROCESS	HA119192AF	(IC0201)	HA118192AF/372F	(IC0201)
1H DELAY	CXL5516N	(IC0202)	Same as left	
CCD 1H DELAY	CXL5507M	(IC0203)	Same as left	
VIDEO AMP	UPC5023GS-104-E1	(IC0204)	Same as left	
CRT (W/B) EVF				
VIDE AMP./V.H DEFLECTION	HA118179F	(IC2001)	Same as left	
LCD DISPLAY				
LCD MODULE	———		TS9622	(LD3501)
LCD VIDEO PROCESS	IR3Y29AM	(IC5301)	———	
LCD REG.	TL5001CD	(IC5401)	———	
LCD REG.	TL5001CD	(IC5501)	———	
LED DRIVE	NJM2406F	(IC5502)	———	
LCD DRIVE	LZ95NA1	(IC5601)	———	
PULSE GEN.	NJM3414	(IC5602)	———	

JIGS AND TAPES FOR ADJUSTMENT

1. Alignment Tape Color Bar/400Hz (20HSC-2) No. 7099231 	**2**. Cassette Torque Meter SRK-8T-132 : No. 7099235 SRK-8T-112 : No. 7099385 	**3**. Master Plane No. 7099237 	**4**. Reel Disk Height Jig No. 7099238 
5. Special Driver No. 7099239 	**6**. ATF-R Jig *(*1, *2)* No. 7099461 	**7**. C12 Light Balance Filter 46mm ϕ No. 7099369 	§**8**. 10-Pin Extension Cable No. 7069183 
9. 2-Pin Extension Cable No. 7069038 	**10**.10-Pin Extension Cable No. 7069039 	**11**. 9-Pin Extension Cable No. 7069040 	**12**. 20-Pin Extension Cable No. 7069112 
13. DSP AV Output Jig No. 7099456 	**14**. DSP-R Jig No. 7099448 	§**15**. Adjustment Floppy Disk (3.5inch) No.7069188 	§**16**. Adjustment Floppy Disk (5inch) No.7069189 
ƒ **17**. Personal Computer 	ƒ **18**. Personal Computer Cable 9-PIN or 25-PIN (RS232C Straight type) 	**$19**. AV INPUT CABLE *(*3, *4)* 	§**20**. 6P-Pin Extension Cable *(*5)* No. 7069187 
#21. AV Output Cable *(*3)* (For US Pin Jack) 	(For 20 Pin AV Jack) 		

For marks :

§: New jigs and tools ƒ : Goods on the Market $: Optional Accessory #: Accessory

Caution for jigs :

*1. Always set SW3 on the ATF-R jig to ON.

*2. The ATF jig (No.7099386) can also be used in place of ATF-R jig to adjust this model.

*3. Either the monaural or stereo AV input/output cable can be used.

*4. To supply video and audio signals to the normal 8 model, the AV input cable must be modified. (See next page for how to modify it).

*5. The 6-pin extension cable (No.7069187) is necessary only with models having a color EVF.

HOW TO USE THE EXTENSION CABLE

NAME OF JIGS	PARTS No.	HOW TO USE
10-Pin Extension Cable	7069183	Power supply cable for power shutoff level adjustment. (Cable to power the camera/recorder after the case is removed) [Red: Positive, Black: Negative]
2-Pin Extension Cable	7069038	Installed between the VCA circuit board and loading motor.
10-Pin Extension Cable	7069039	Installed between the VCA circuit board and cylinder. NOTE: Using this extension cable causes noise to occur in the playback picture. This cable is used to check voltage and waveforms. Check the picture quality in the regular connection state.
9-Pin Extension Cable	7069040	Installed between the VCA circuit board and capstan motor.
20-Pin Extension Cable	7069112	Installed between the SE and VCA circuit boards.
6-Pin Extension Cable	7069187	Cable exclusively for LCD color EVF adjustment (not necessary for models having a B&W EVF)

Procedure to modify the AV input cable (for normal 8 models)

Although normal 8 models do not have AV input function, you can modify the AV input cable so that video and audio signals can be input. For adjustment and performance check, modify the AV input cable by following the procedure below, to input signals:

Caution 1: Do not modify the AV input cable for purposes other than adjustment or performance check.

Caution 2: Modify the AV input cable correctly. If an improperly modified cabl e is connected to a camcorder, it will result in malfunctions.

Caution 3: Since Hi-8 models have an AV input function, use an unmodified AV i nput cable to input the video and audio signals.

Modify the AV input cable.

Change the connection of pin 13 of the AV input cable from ground to pin 2 (DC5V). (After checking that pin 13 and ground are not connected, connection of pin 13 to pin 2 (DC5V).)

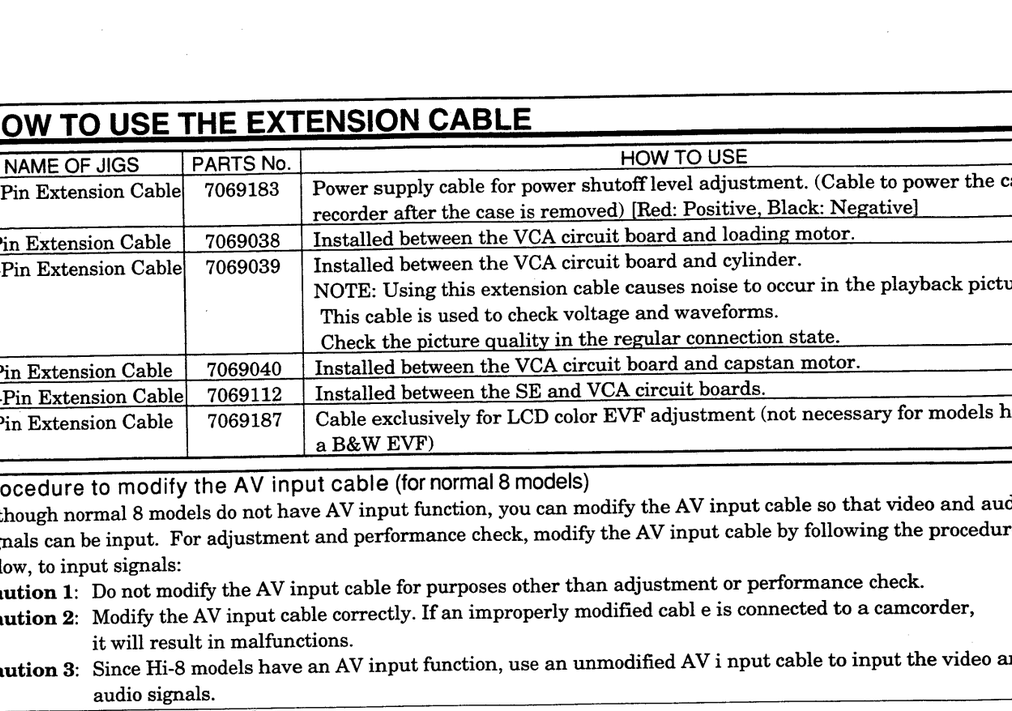


Fig.1-1 Extension Cable Connection Diagram

SERVICE MANUAL ABBREVIATION LIST

A	
ACC	Automatic Color Control
ADD	Adder
ADRS	Address
AF	Automatic focus (Autofocus)
AFC	Automatic Frequency Control
AGC	Automatic Gain Control
AGC KILLER	AGC Killer Voltage
AI	Automatic Intelligence
AIC	Automatic Iris Control
ALC	Automatic Level Conrol
AMP	Amplifier
APC	Automatic Phase Control
ASBL	Assemle (Phase Matching)
AUD.	Audio
AUX	Auxiliary
A/D	Analog-to-Digital Converter
A.DUB	Audio Dubbing
B	
B (BLU)	Color Signal Blue
BATT.	Battery
BF	Burst Flag
BG	Burst Gate or Back Ground
BGP	Burst Gate Pulse
BLK	Blanking
BPF	Bandpass Filter
BUF.	Buffer Amplifier
B-YL	Color Difference Signal B-YL
C	
C (CHROMA)	Chrominance Signal
CAM	Camera
CAPST.	Capstan
CARRI.	Carrier
CATV	Cable TV
C.BLK	Composite Blanking
CCD	Charge Coupled Device
CDS	Correlated Double Sampling
CG	Character Generator
C.FG (CFG)	Capstan Frequency Generater
C.FREE RUN	Capstan Free Run
CH (Ch or ch)	Channel
CHARA.	Character
CHD	Camera Horizontal Drive Pulse
C.MEMORY	Counter Memory
CNR	Chroma Noise Reducer
COM.	Common
COMPA.	Comparator
COMPE.	Compensator
COMP-EXP	Compressor-Expander
COMPO	Composite
CONT.	Control
CONV.	Converter
COUNT.	Counter
CP	CP
C.PAUSE	Camp Pulse
C/R	Capacitor/Resistor
C.RESET	Countor Reset or Camera Reset

C	
C.REVERSE	Count Reverse
CS	Communication Signal
CST	Cassette
C.SYNC	Composite Synchronizing Signal
CTL	Control Track Pulse (Control)
CYL	Cylinder
D	
D (Digital)	Digital
DA	Double Azimuth
D/A	Digital to Analog Converter
D-D	Direct Drive
DEEMPHA.	Deephasis
DEF	Deflefction
DEMOD.	Demodulator
DET	Detector
DIFF. AMP	Differential Amplifier
DISP.	Display
DL	Delay Line
DO	Dropout
DOC	Dropout Compensator
DSP	Digital Signal Processor
D/W	Dark/White
D.ZOOM (DZ)	Digital Zoom
E	
EAROM (EA-ROM)	Electrically Alterable Read Only Memory
EEPROM (EEP-ROM)	Electrical Erasable Proframmed
E-E	Electronic-to-Electronic
EIS (E.I.S.)	Electronic Image Stabilizer
EMPHA. (EMPH)	Emphasis
EQ	Equalizer
ESS	Supply End Sensor
EST	Take-up End Sensor
EVF	Electronic Viewfinder
EXT.	External
E.ZOOM	Electronic Zoom
F	
F.ADV	Frame Advance
F/V	Frequency-to-Voltage Converter
FB	Feed back
FE	Full Erase
FF (F/F)	Flip Flop
F.FWD	Fast Forward
FG	Frequency Generator
FM	Frequency Modulation
FREQ.	Frequency
fsc	Sub Carrier Frequency
FWD	Forward
G	
GEN.	Generator
GND	Ground
H	
H (HORIZ.)	Horizontal
HB	Hi-Band

H	
HBF	Horizontal Burst Flag
HD	Horizontal Drive
Hi-Fi	High Fidelity
HPF	High-pass Filter
I	
IF	Intermediate Frequency
INDI.	Indicator
INST.	Instant
INT.	Internal
INV.	Inverter
I/O	In/Out (Input/Output)
IR	Infrared Rays
L	
LB	Low-Band
LCD	Liquid Crystal Dissplay
LIN.	Linear
LM	Loading Motor
LNC	Line Noise Canceller
LOG	Logarithm
LP	Long Play
LPF	Low-pass Filter
LUMA	Luminance
L/R	Left/Right
M	
MAN	Manual
M.BRAKE	Main Brake
M.CUT	Monitor Cut
MEM.	Memory
MIC	Microphone
MIX	Mixer
MMV	Monostable Multivibator
MOD.	Modulator
M.STATE	Mechanism State
M.STOP	Memory Stop
N	
NEG	Negative
NFB	Negative Feed Back
NOR. (NORM)	Normal
NR	Noise Reduction
O	
OB	Optial Black
OSC	Oscillator
OSD	On-Screen Display
P	
PB (PLAY)	Playback
PG	Pulse Generator
PLL	Phase Locked Loop
POS.	Positive
PROG.	Program
PROT.	Protector
PWM	Pulse Width Modulation
R	
R (RED)	Color Signal Red
RAM	Random Access Memory
REC	Record
RECT.	Rectifier

R	
REF.	Reference
REG.	Regulator
REV	Review
REW	Rewind
RF	Radio Frequency
ROM	Read Only Memory
RSS	Supply Reel Sensor
RST	Take-up Reel Sensor
R-YL	Color Difference Signal R-YL
S	
SAW	Sawtooth Signal
SC1 (0°)	3.58MHz Subcarrier Signal 1 (0-degree Phase Shifted)
SC2 (90°)	3.58MHz Subcarrier Signal 2 (90-degree Phase Shifted)
SEPA. (SEP)	Separator
S/H	Samle and Hold
SP	Standard Play or Speaker
S.REEL	Supply Reel Sensor
SRCH	Search
SRV	Servo
STABI.	Stabilizer
S.TRACK	Slow Tracking
STBY	Standby Mode
S-VHS	Super VHS
SW	Switch
SW30Hz (15 or 25Hz)	30Hz Head Switching Pulse (15 or 25Hz Head Switching Pulse)
SYNC	Synchronizing signal
SYS.CON	System Control
T	
T (TELE)	Telephoto Angle
T.BRAKE	Take-up Brake
TP	Test Point
T.REEL	Take-up Reel Sensor
TRS	Transfer
V	
V (VERT.)	Vertical
V.AGC	AGC Voltage
VCO	Voltage Controlled Oscillator
VD	Vertical Drive
V.DUB	Video Dubbing
VHS	Video Home System
VOL.	Volume
VP	Voltage Pulse
VCXO	Voltage Controlled Crystal Oscillator
W	
W (WIDE)	Wide Angle
WHT	Color Sifnal White
WHD	Wide Horizontal Drive
WHT BAL.	White Balance
Y	
Y	Luminance Signal
Y/C	Luminance/Chrominance
YEL (Ye)	Color Signal Yellow
YL	Luminance Signal (Low Component)

LEADLESS (CHIP) COMPONENT IDENTIFICATION

1. Leadless Transistor

The part name of a leadless transistor is indicated by a code on its surface, using one letter, one letter and one numeral,two letters, two letters and one numeral, two numerals, two numerals and one letter, three letters, or four letters.

Note: There are transistors with the same code but different part names, or with the same part name but different codes. Refer to the parts lists to finally identify a transistor.

CODE	PART NAME	CODE	PART NAME
Leadless (Chip) Transistor			
3925	2SC3925	BQ	2SB709A
1CQ	2SCB902	BR	2SC4081R
1D	2SC3127	BR	2SC2412K
1DS	2SD1328S	BR	2SC4617
1DT	2SD1328	BS	2SC2412K
1R	2SB970TX	C-7	2SA811
2BQ	2SK374PQ	C1G	KSC1623
2BR	2SK374QR	CB	2SC3646
2Y	2SC3757	CC	2SA1122C
2YQ	2SC4691	CC	2SC3647T
3N	2SK620	CC	2SC3647
4N	XN5601	CD	2SA1122D
4Q	XN1B301	CE	2SA1122E
4R	XN1C301	CK	2SD999
5C	XN4601	CP	2SC4097
5C	XP4601	CQ	2SC2411K
5H	XP4501	CR	2SB710
5H	XN4501	CR	2SC2411
5K	XP4401	CR	2SB1219
5K	XN4401	D16	2SC1622A
5L	XN5501	D17	2SC1622A
5N	XN6501	D18	2SC1622A
5O	XN6401	DB	2SD1766
5R	XP1501	DE	2SC2463
5R	XN1501	DF	2SD1623
5S	XN1504	DF	2SD1898
5V	XN1401	DG	2SD1624
5W	XN2501	DK	2SB798
5X	XN4504	EC	2SA1022
7R	XN2401	F-2	2SC1009F2
7S	XN1601	F-3	2SC1009F3
AA	2SD1757K	F-4	2SC1009F4
AKQ	2SA1738	FC	2SC2619
AKQ	2SA1806	FR	2SA1774
AL	2SA1791	FR	2SA1037K
AM	2SC4656	FR	2SA1576R
AO	2SB709AQR	FS	2SA1037K
AQ	2SB709AQ	GC	2SC2734
AQ	2SB766	GM	3SD1615
AR	2SB1462	HQ	2SA1036K
AR	2SB766	IC	2SC3016
AR	2SB709ARS	IRD	2SA1484
AR	2SB1218R	IS	2SB792S
AS	2SB766	IT	2SB792T
AS	2SB709AS	L-4	2SC1623L4
B3	2SC1621B3	L-5	2SC1623L5
B4	2SC1621B4	L-6	2SC1623L6
BC	2SB1188	L-6	2SC2812L6
BD	2SB1121	L-7	2SC2812L7
BE	2SB1260	L5	MMBC1623L5
BF	2SB1123	L6	MMBC1623L6
BF	2SB1308	LB	2SC2462B
BG	2SB1124	LC	2SC2462C
BH	2SB1001	LD	2SC2462D

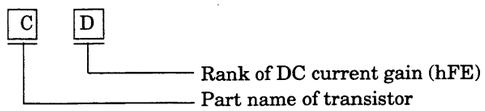
CODE	PART NAME	CODE	PART NAME
Leadless (Chip) Transistor			
LR	2SC2412KLN	T2	IMT2
M-5	2SA812	UD	2SC2404
M-6	2SA1179	ZS	2SD874S
MC	2SA1052MC	VR	2DS968A
MD	2SA1052MC-D	W1	FMW1
N3	2SC1653	W10	FMW10
ND	2SD1306ND	W2	FMW2
NE	2SD1306NE	W3	FMW3
PD	2SA1171D	WR	2SD602
PS	2SD814	X1	UMX1
QB	2SC2520QB	X1	IMX1
QC	2SC2620QC	X2	IMX2
QO	2SC2714	Y1	FMY1
R22	2SC4226	Y12	2SA1464
R22	2SC3356	Y25	NTM3906
R32	2SC4227	Y3	FMY3
R34	2SC3583	YCD	2SK197
R42	2SC3585	YI	2SA1666
RB	2SC2618RB	YQ	2SD601YQ
RC	2SC2618RC	YR	2SD601YR
RK	2SC3357	YR	2SD1819R
S1	FMS1	YR	2SD2216
S2	FMS2	YS	2SD601YS
SC	2SA1121	Z1	IMZ1
SO	2SA1162	Z2	IMZ2
SP	2SC3082K	ZO	2SD874T
T1	IMT1	ZQ	2SD601A
T1	UMT1	ZR	2SD874R
Digital Transistor			
3	DTC143TK	6C	UN9113
4	DTC114TK	6S	NP4113
6	DTC144TK	8B	UN5212
13	DTA143EK	8C	UN9213
14	DTA144EK	8C	UN2213
15	DTA124K	8S	XP4213
15	DTA124EU	9L	XP1213
16	DTA144EU	9L	XN1213
16	XDA144EK	A1	FMA1
16	DTA144EE	A1	UMA1
23	DTC143EK	A2	FMA2
24	DTC114EU	B2	UMB2
24	DTC144EK	B2	IMB2
25	DTC124EU	C2	FMC2
25	DTC124K	C5	FMC5
26	DTC144EE	D2	IMD2
26	DTC144EU	F52	DTB123
26	XDC144EK	G1	FMG1
33	DTA143XK	G2	FMG2
43	DTC143XK	G21	DTD113ZK
52	DTA123YK	G5	FMG5
60	UN511F	H03	DTC343TK
64	DTC114YK	H2	IMH2
80	UN521F	H2	UNH2
4P	XN1A312T	H27	DTC363EK
6B	UN5112	RO4	KSR1104
6C	UN2113	R31	FP1L2Q
FET			
30	2SK621	KB	2SK323
1FQ	2SK321FQ	WS	2SK322T
1FR	2SK321FQR	WT	2SK322T
1KP	2SK316	X15	2SK425
2BQ	2SK663	X4	2SK94
DY	2SK1579	XAF	2SK980FG
JO	2SK208	YC	2SK197YC
K	3SK166	YD	2SK197YD
K4	2SK160K4	YE	2SK197YE
K5	2SK160K5	ZD	2SK217ZD

(1) Identification with two letters

Use this code and the following chart for transistor identification.

Example :

Code	Part name
CD	2SA1122D
LD	2SC2462D

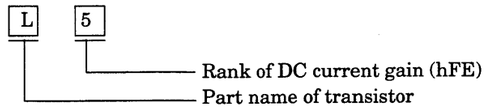


(2) Identification with one letter and one numeral

Use this code and the following chart for transistor identification.

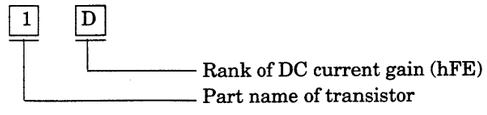
Example :

Code	Part name
L5	2SC1623(5)
L6	2SC1623(6)



Example :

Code	Part name
1D	2SC3127D



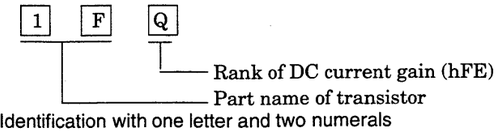
Note: Codes S1,S2,T1,W1,W2,W3,X1,Y1,Y3,Z1 and Z2 encode only the part names.

(3) Identification with one numeral and two letters

Use this code and the following chart for transistor identification.

Example :

Code	Part name
1FQ	2SK321Q

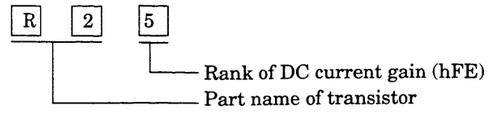


(4) Identification with one letter and two numerals

Use this code and the following chart for transistor identification.

Example :

Code	Part name
R25	2SC3356

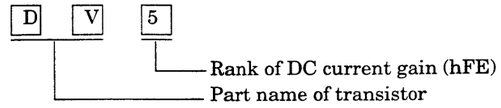


(5) Identification with two letters and one numeral

Use this code and the following chart for transistor identification.

Example :

Code	Part name
DV5	2SD596

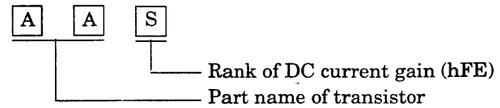


(6) Identification with three letters

Use this code and the following chart for transistor identification.

Example :

Code	Part name
AAS	2SD1757KS



2. Leadless Diode

The part name of a leadless diode is indicated by a code on the surface, using one letter and one numeral,two letters, two letters and one numeral, two numerals and one letter, or three numerals. Use this code and the following table to identify the part name of a diode.

Note: Refer to the parts lists to finally identify a diode.

CODE	PART NAME	CODE	PART NAME
Diode			
0	HVU300A	3D	RB715F
1.0	ISV201	3.0L	MA3030L
2.0	MA3020	3.6L	MA3036L
5.1	MA3051L	3.9L	MA3039L
5.1	MA3051M	4.3H	MA3043H
6.8	MA3068	4.3L	MA3043L
6.8	MA3068M	4.3M	MA3043M
7.5	MA3075L	4.7L	MA3047L
8.2	MA3082M	4.7M	MA3047M
9.1	MA3091	5.1H	MA3051H
20	HZM6	5.1L	MA3051L
24	ISV221	5.1M	MA3051M
27	RD2.7M B	5.6M	MA3056M
30	RD3.0M B	6.2L	MA3062L
51	RD5.1M B2	6.2M	MA3062M
56	RD5.6M B	6.8H	MA3068H
91	RD9.1M B	6.8L	MA3068L
102	RD10M B2	6.8M	MA3068M
122	RD12M B2	6.8M	MA3068
163	RD16M B3	7.5H	MA3075H
182	RD10M B2	7.5L	MA3075L
271	RD2.7M B	8A	UN221D
272	D2.7M B2	8.2H	MA3082H
301	RD3.0M B	8.2M	MA3082M
362	D3.6M B2	9.1M	MA3091M
391	D3.9M B1	9.1M	MA3091
512	RD5.1M B2	10L	MA3100L
561	RD5.6M B	10M	MA3100M
621	RD6.2M B1	11L	MA3110L
681	RD6.8M	12M	MA3120M
683	RD6.8M B3	13H	MA3130H
911	RD9.1M B	18M	MA3180M
2.7H	MA3027H	36M	MA3360

CODE	PART NAME	CODE	PART NAME
Zener Diode			
1A	MA110	M3A	MA199
A3	1S2835	MC	MA153
A4	HSM2836C	MC	MA143
A5	1S2837	MH	MA141K
A6	HSM2838C	MH	MA151K
B	SB0505CP	MH	MA152K
B64	SFPB64	MI	MA132K
B74	SFPB74	MN	MA141WA
BE	1SV172	MN	MA152WK
C1	HSM88S	MN	MA132WA
C2	HSM276S	MO	MA152WA
C3	1SS226	MO	MA133
C4	HSM88WK	MP	MA151WK
F7	KV1470	MT	MA141WK
H5	HVM14	MT	MA141WK
J	SB07-03C	MU	MA132WK
K	DA221	MU	MA151WA
M1A	MA159	N	DAN222
M1C	MA158	N	DAN202T
M1M	MA721	NU	MA152WK
M1N	MA713DAT	P	DAP202T
M1P	MA714	S4	DIFS4
M2A	MA122	SA	SB10-05P
M2B	MA123	Z	DA106K

3. Leadless Resistor

The resistor value is indicated on its surface, using three numerals, or one letter and one numeral.

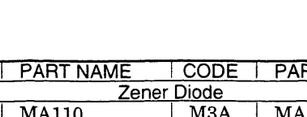
(1) Identification with three numerals

Read this code following the same procedure as when reading the color code on discrete resistors.

Example:

Code	Value
330	33 × 100 = 33 ohms
561	56 × 101 = 560 ohms
123	12 × 103 = 12K ohms
1R2	1 + 0.2 = 1.2 ohms

(R: Decimal point)



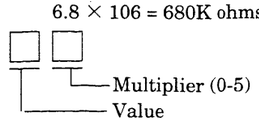
(2) Identification with one letter and one numeral

Use this code and the following chart for resistor identification.

Letter	Value	Letter	Value	Letter	Value
A	1	J	2.2	S	4.7
C	1.2	L	2.7	U	5.6
E	1.5	N	3.3	W	6.8
G	1.8	Q	3.9	Y	8.2

Example:

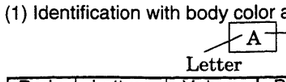
Code	Value
A1	1 × 101 = 10 ohms
G2	1.8 × 102 = 180 ohms
L3	2.7 × 103 = 2700 ohms
S4	4.7 × 104 = 47K ohms
W5	6.8 × 106 = 680K ohms



4. Leadless Capacitors

The capacitor value is indicated on its surface, using body color and one letter, or one letter and one numeral.

(1) Identification with body color and one letter

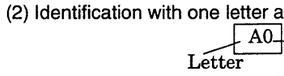


Body Color	Letter	Value	Body Color	Letter	Value
Red	A	1(PF)	Blue	G	180(PF)
	C	2		J	220
	E	3		L	270
	G	4		N	330
	J	5		Q	390
	L	6		S	470
	N	7		U	560
	Q	8		W	680
	S	9		Y	820
Black	A	10(PF)	White	A	0.001(μF)
	C	12		E	0.0015
	E	15		J	0.0022
	G	18		L	0.0027
	J	22		N	0.0033
	L	27		S	0.0047
	N	33		W	0.0068
	Q	39	Green	A	0.01(μF)
	S	47		E	0.015
	U	56		J	0.022
	W	68		N	0.033
	Y	82		S	0.047
Blue	A	100(PF)		U	0.056
	C	120		W	0.068
	E	150		Y	0.082
			Yellow	A	0.1(μF)

Example :

Color	Letter	Value
Red	A	1PF
Black	A	10PF

(2) Identification with one letter and one numeral



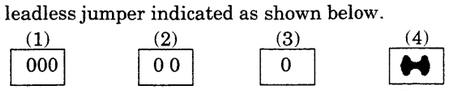
Letter/Numeral	Value	Letter/Numeral	Value
A0	1(PF)	A2	100(PF)
H0	2	C2	120
M0	3	E2	150
d0	4	G2	180
f0	5	J2	220
m0	6	L2	270
n0	7	N2	330
t0	8	Q2	390
y0	9	S2	470
A1	10(PF)	U2	560
C1	12	W2	680
E1	15	Y2	820
G1	18	A3	0.001(μF)
J1	22	E3	0.0015
L1	27	J3	0.0022
N1	33	N3	0.0033
Q1	39	S3	0.0047
S1	47	W3	0.0068
U1	56	A4	0.01(μP)
W1	68	E4	0.015
Y1	82	J4	0.022
		N4	0.033
		S4	0.047
		U4	0.056
		W4	0.068
		A5	0.1

Example :

Letter/Numeral	Value
A0	1PF
A1	10PF

5. Leadless Jumper

The leadless jumper indicated as shown below.



MAINTENANCE/INSPECTION PROCEDURE

1. Required Maintenance

The recording density of a VCR is much higher than that of an audio tape recorder. VCR components must be very precise to ensure compatible with other VCRs. If any of these components are worn or dirty, the symptoms will be the same as if the part is defective. To ensure a good picture, periodic inspection and maintenance, including replacement of worn-out parts and lubrications, is necessary.

2. Scheduled Maintenance

Schedules for maintenance and inspection are not fixed because they vary greatly according to the way in which the customer uses the VCR, and the environment in which the VCR is used. But, in general home use, a good picture will be maintained if the inspection and maintenance is done every 500 hours. Table 1 shows the relation between time used per day and inspection period.

Table 1

Average hours used per day	When inspection is necessary: About 6 months ↓	About 9 months ↓	About 18 months ↓
One hour			
Two hours			
Three hours			

3. Check before starting Repairs

The faults occurring in the playback picture as shown in Table 2 can be remedied by cleaning and oiling. Check the need for lubrication and the conditions of cleanliness in the unit. Check with the customer to find out how often the unit is used. If from that you determine that the unit is ready for inspection and maintenance, check the parts shown in Table 2.

Table 2

Phenomenon	Inspection Location
Poor S/N, no color	Dirt on video head or worn video head
Tape does not run or tape is slack	Dirt on pressure roller, cylinder or in tape transport system
Vertical jitter	Dirt on video head or in tape transport system
Low volume or sound distorted	Dirt on video head or worn video head

4. Tools Needed for Inspection and Maintenance

(1) Head cleaning kit
(2) VCR oil and grease (Table 3)
(3) Alcohol
(4) Gauze
(5) Cleaning tape 〔Maxell 8M-CL MCA (dry type)〕

Table 3 Locations for Greasing and Oiling

Name	Oil or Greasing Location
Sonic Slidas Oil (#1600)	Oil low-speed rotating sections
Froil (G31-SA)	Lubricate metal or molded section under light load
Molicoat (PG-641)	Lubricate metal or molded sections under light load
Lock paint	Fix adjustment screws and nuts.

5. Maintenance Procedures

5-1 Cleaning

(1) Cleaning video head

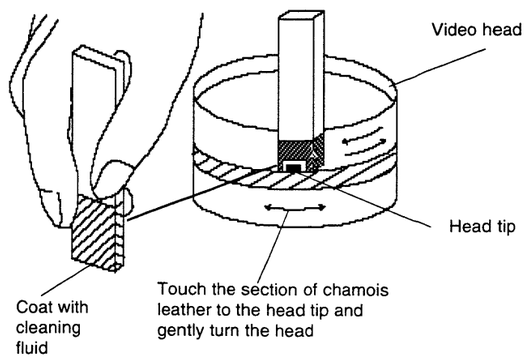
First use a cleaning tape. Be sure to use the specified cleaning tape and read its instruction sheet carefully before using it. If dirt on head is too stubborn to remove by tape, use the cleaning kit. Moisten the cleaning stick with cleaning fluid at the point indicated. Touch the stick to the head tip and gently turn the head (rotating cylinder) to the right and left. (Do not move the stick vertically and make sure that only the chamois leather on the stick comes into contact with the head. Otherwise, the head may be damaged.) Thoroughly dry the head. Then test run a tape. If cleaning fluid remains on the video head, the tape may be damaged when it comes into contact with the head surface.

(2) Cleaning the tape transport system and drive system, etc.

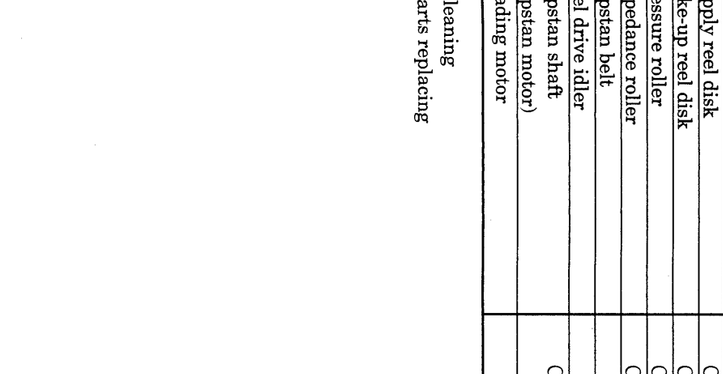
Wipe with gauze moistened with alcohol.

Notes: 1) The tape transport system is the system which comes into contact with the running tape. The drive system consists of those parts which run the tape.

2) Make sure that during cleaning you do not touch the tape transport system with the tip of a screwdriver and that no force is applied to the system that could deform it.


Video head
Head tip
Coat with cleaning fluid
Touch the section of chamois leather to the head tip and gently turn the head

Identifying Controls



1. Lens Door
Slide the lens door opener to open and close the lens door. To protect the lens, keep the lens door closed when not recording.

2. Lens
F1.4 – 2.8 (4~64mm) 16:1 power zoom lens with auto focus and auto iris functions.

3. Lens Door Opener
Slide the opener to open and close the lens door. Align with OPEN to open the lens door for recording. Align with CLOSE to close it.
Hold down the small button in the opener as you slide it to CLOSE. However, you need not hold it down to slide the opener to OPEN.

4. Electronic Viewfinder

5. Diopter Control
To use the electronic viewfinder, turn this control for your optimum focus adjustment.

6. Stereo Microphone
Sensitive to sounds coming from the direction in which the camera is pointed.

7. Record Indicator
This indicator lights when the camcorder is recording.

8. Infrared Receiver
The area where infrared signals from the wireless remote are received. Aim the remote control to this area for best results.

9. Speaker
You can listen to the recorded sound.

10. OPEN Button
Push this button to open the LCD monitor.

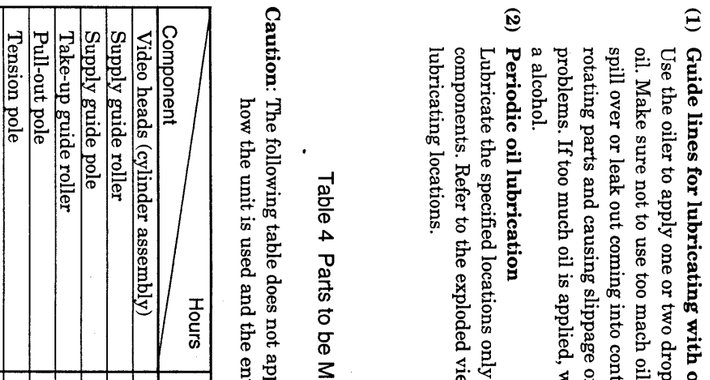
11. Bright Control
Use this to adjust the brightness of the LCD monitor screen ("Adjusting the Brightness of the LCD Screen", p19).

12. Volume Control
Use this to adjust the volume when viewing a played back picture on the LCD monitor ("Playback", p28).

13. LCD Monitor
You can view the pictures as they are being recorded and play them back immediately after recording on the 3-inch LCD screen.

14. Cassette Holder
A power source must be connected to the camcorder before a cassette can be inserted or removed.

15. Cassette Holder Close Button
CAUTION: Be sure to press this button to close the cassette holder. Otherwise, the tape may become slack and may be damaged.



16. INST. ZOOM (Instant Zoom) Button
Use this button to magnify the image being recorded 1.5 times.

17. EIS (Electronic Image Stabilizer) Button
EIS corrects slight shaking of an image ("Using the Electronic Image Stabilizer," p39).

18. D.EFFECT Button
Use this button to add special effects to your recording. You can select five modes – the 16 x 9 mode, negative/positive mode, X130 digital zoom mode, half-mirror mode and mosaic mode. (See "Digital Effects Recording" on page 36.)

19. FADE Button
The FADE button features four modes; white fade, wipe fade, zoom fade and black-and-white fade ("Using Fade", p38).

20. DATE/DISP. Button
When the CAM/OFF/VIDEO switch is set to CAM, this button can be used as the DATE button: set the date and time, and select the date display you want to record ("Setting the Date and Time", p22 and "Date Recording", p35).
In the VIDEO mode, the DATE/DISP. button is used as the DISPLAY button ("Using the Display Button", p40).

Note: Be sure to insert the clock battery before setting the date and time or creating a title.

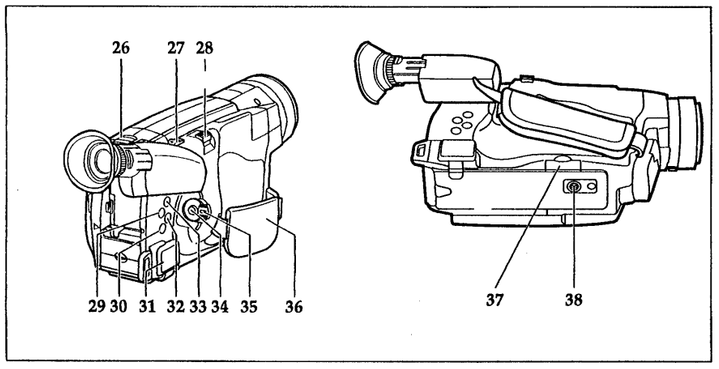
21. FOCUS Control Buttons
Press these buttons simultaneously to select manual or automatic focus. For manual focusing ("Using Manual Focus", p26), press the ▲ or ▼ buttons to bring the subject into focus. When using manual focus, "FOCUS" appears in the viewfinder or LCD monitor.

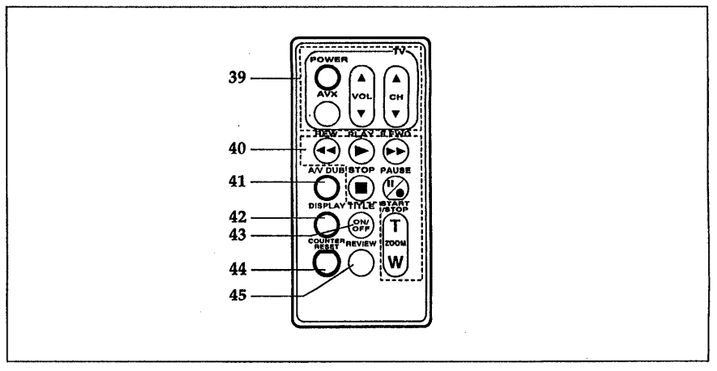
22. DC IN Jack
When using the AC adapter/charger, connect one end of the DC cord (provided) to this jack and the other end to the DC OUT jack of the AC adapter/charger. When using the car battery cord (optional), connect this jack and the DC OUTPUT jack of the car battery cord.

23. AUDIO/VIDEO Output Jacks (Behind the Jack cover)
You can use an audio/video cable (not supplied) instead of the AV stereo output cable (provided) when viewing the playback picture on the TV, etc.
- Connect the yellow plug of the audio/video cable to the yellow jack (VIDEO OUT) and the white plug to the white jack (AUDIO OUT).
- The playback sound becomes monaural.

24. Power Supply Attachment Section
Attach the battery here ("Camcorder Batteries", p16).

25. Shoulder Strap Slots
Attach the shoulder strap here.





26. BATTERY EJECT Lever
Releases the battery attached to camcorder.

27. EJECT Switch
Slide this switch to open the cassette door. A power source must be connected before cassettes can be inserted or removed though the CAM/OFF/VIDEO switch may be set to OFF ("Inserting and Removing Cassettes", p18).

28. Power Zoom Control
Use this to zoom automatically ("Using the Power Zoom", p26).

29. PLAY Button
Use to playback recorded tapes.

30. STOP Button
Use this button to stop playback, fast forward, or reverse. Also use this button to set date and time.

31. Audio/Video Input/Output Jack (Behind the jack cover)
Use this jack to connect the camcorder to a VCR or television ("Playing Back Your Recording on Your TV", p30, 31, "Dubbing from the Camcorder to a VCR", p45 "Recording Television Programs", p53).

32. REW/REVIEW Button
Use this button to fast rewind tapes or for visual search. During visual search the camcorder rewinds at approximately 7 times normal playback speed ("Using Forward and Reverse Search", p29). Also use this button to set date and time. Furthermore, use this button to review the last few seconds of the tape you are recording.

33. F.FWD Button
Use this button to fast forward tapes or for visual search. During visual search the camcorder fast forwards at approximately 9 times normal playback speed ("Using Forward and Reverse Search", p29). Also use this button to set date and time.

34. Start/Stop Button
When the CAM/OFF/VIDEO switch is in CAM press this button to start recording. When pressed a second time the camera pauses.
During playback use this button to stop the tape temporarily. Pressing a second time resumes normal playback.

35. CAM/OFF/VIDEO Power Switch
This switch turns the camcorder on and off. Set the switch to CAM for camera recording, and to VIDEO for playback. Hold down the small red button as you slide the switch to CAM or VIDEO. You do not need to hold down the red button to slide the switch to OFF.

36. Hand Strap
Refer to page 20.

37. Clock Battery Compartment
Pull the battery holder and install the clock battery (provided). (See "Loading Clock and Remote Control Batteries" on page 14.)

38. Tripod Mounting Threaded Socket
Use this threaded socket to mount the camcorder to a tripod.

39. TV Control Buttons
Used for controlling the TV.
- POWER : Turns the TV on and off.
- AVX : Used for recording picture and sound from an auxiliary input.
- VOLUME: Increase (▲) or decrease (▼) the volume.
- CHANNEL : Top (▲) button switches to the next higher channel, bottom (▼) button switches to the next lower channel. For these to operate, you must have preset your channels.

("Controlling your TV with the Camcorder's Remote Control", p50).

40. Recorder's Remote Control
The shaded buttons on the remote control have the same functions as the corresponding buttons on the camcorder.

41. A/V DUB Button (only on the remote control)
Use this button to record new audio and video over existing audio and video.

42. DISPLAY Button
Use this button to select the viewfinder or LCD monitor and TV display ("Using the Display Button", p40). This button can be used instead of the DATE/DISP. button on the camcorder in the VIDEO mode.

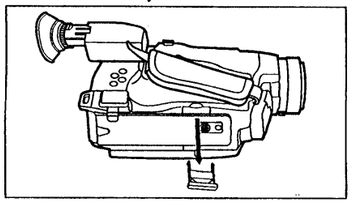
43. TITLE ON/OFF Button (only on the remote control)
Use this button to create and record titles for your tapes ("Creating and Recording a Title", p 43).

44. COUNTER RESET Button (only on the remote control)
Use this button to reset the linear time counter to "0:00:00".

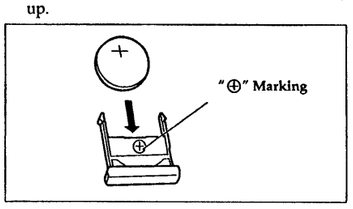
45. REVIEW Button
Used to review the last few seconds of the recorded segment in the record/pause mode.

Loading Clock and Remote Control Batteries
Install the batteries to prevent misplacing them.

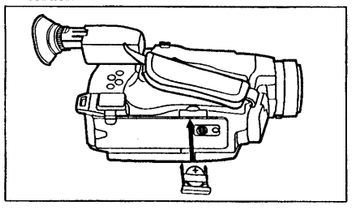
Clock Battery
1. Pull out the battery holder.



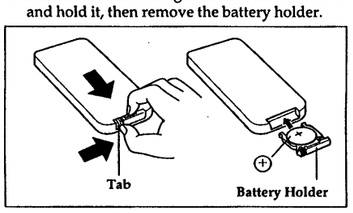
2. Insert the battery with the "+" terminal facing up.



3. Fully insert the battery holder into the camcorder.



Remote Control Battery
1. Push the tab to the right of the remote control and hold it, then remove the battery holder.



2. Press the PLAY button and hold it for about two seconds.
3. Insert the battery with "+" terminal facing up as shown in the figure.
4. Replace the battery holder with battery in the remote control making sure that it is fully inserted.

WARNING: KEEP THE BATTERIES AWAY FROM CHILDREN AND PETS.

IF SWALLOWED CONSULT A PHYSICIAN IMMEDIATELY FOR EMERGENCY TREATMENT.

Note: Replace the batteries with 3V micro lithium cells such as Maxell CR2025 or its equivalent.

Note: Dispose of batteries safely in accordance with local laws. Do not dispose of in fire.

Note: Do not short circuit the batteries.

Note: Do not take apart the batteries.

Note: Do not hold the batteries with the metallic tweezers.

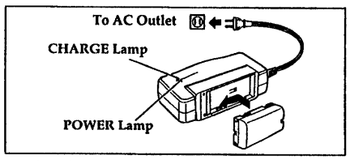
Note: Do not recharge the batteries.

Note: Keep the batteries in a dark, cool, dry place.

Charging the Battery
The first step is to set the battery to charge. To charge the battery, use the provided AC adapter/charger.

Note: This camcorder operates with the Lithium Ion battery such as VM-BPL13/VM-BPL27.

Charge the battery on a flat surface without vibration.



1. Plug the AC adapter/charger power cord into an AC outlet. The POWER lamp (red) lights up.
2. Align the bottom of the battery with mark ▶ on the AC adapter/charger, and then slide it in the direction of the arrow as shown in the figure. The CHARGE lamp (green) lights up.
3. The CHARGE lamp will flash at 3-second cycles to show that the battery has been charged approximately 70% of full charge. When the CHARGE lamp goes out, the battery has been completely charged. After the lamp goes out, unplug the AC adapter/charger from the AC outlet and remove the battery from the AC adapter/charger.

Note: You can use the battery before it is completely charged.

Note: Remove the DC cord from the AC adapter/charger before attempting to charge the battery.

Note: If you re-attach the fully charged battery to the AC adapter/charger after the CHARGE lamp goes out, the lamp will light. This simply informs you that the battery has been completely charged; it does not indicate that the charge has been insufficient.

Charging Time

Charging \ Battery pack	VM-BPL13	VM-BPL27
Full charge	130 min.	230 min.
70% charge	70 min.	140 min.

Note: Charge the battery at temperatures 32~104°F (0~40°C). At temperatures outside this range, charging will take longer.

Note: The battery cannot be charged at extremely high or low temperatures. The CHARGE lamp will flash at rapid cycles to show that charging is not taking place.

Operating Time
The camcorder operating time depends on how often you turn power on/off and use start/stop and zoom.

Recording	Battery pack: LCD monitor	VM-BPL13	VM-BPL27
Continuous recording	OFF	120 min.	270 min.
	ON	100 min.	220 min.
Typical recording	OFF	70 min.	150 min.
	ON	55 min.	120 min.

Notes on the Battery
- It is recommended that the battery always be left in the discharged state when not in use, and charged before you use it.
- Avoid storing a fully charged battery, and do not store it in a place where the temperature is high: this will damage the battery.
- Do not operate the battery at temperature below 14°F (-10°C) or above 113°F (45°C). At extremely low temperatures operation time decreases, while at high temperature the battery may be damaged.
- If the POWER lamp begins to flash during charging, remove the battery and then reattach it to the AC adapter/charger. If the POWER lamp continues to flash after several attempts to attach it, the battery is unable to take a charge and must be replaced.
- Do not attach a hot battery to the AC adapter/charger. Allow it to cool. Attaching a hot battery to the AC adapter/charger causes the POWER lamp to flash.

THERE ARE NO USER-SERVICEABLE PARTS INSIDE THE BATTERY OR AC ADAPTER/CHARGER.

THROWING THE BATTERY INTO FIRE OR EXPOSING IT TO EXCESSIVE HEAT (ABOVE 140°F [60°C]) MAY CAUSE INJURY.

SHORTING THE BATTERY'S TERMINAL INCREASES RISK OF FIRE OR ELECTRICAL SHOCK.

Inserting and Removing Cassettes

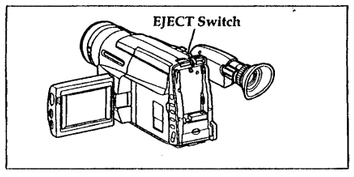
A power source must be connected before inserting or removing cassettes. Once connected, cassettes can be inserted or removed whether the CAM/OFF/VIDEO switch is on or off.

Inserting a Cassette

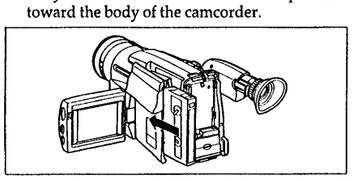
1. Press the OPEN button to open the LCD monitor ("Opening the LCD Monitor", p19).
2. Slide the EJECT switch. "📼 EJECT" will appear on the LCD monitor, and the cassette door will open automatically.

   Caution: Be careful not to catch your fingers between the cassette door and the camcorder as it could cut you.

   Note: Cassette cannot be inserted or ejected unless the LCD monitor is open.

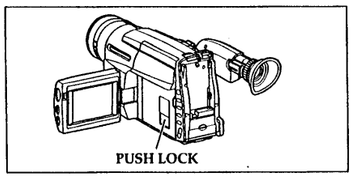


3. Place the cassette in the cassette holder so that the transparent window faces away from the body of the camcorder and the sprockets toward the body of the camcorder.



4. Push the cassette holder, which is embossed PUSH LOCK on the left hand side, until it "clicks" into place. The camcorder automatically closes.

   Caution: Be sure that you push the cassette holder embossed PUSH LOCK to close the holder. Otherwise, the holder will not click into place and the tape may be slack which could lead to damage.



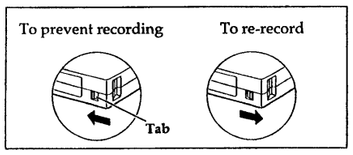
Note: If "TAPE" flashes in the viewfinder or LCD monitor, remove the cassette and check that the tape is not damaged, is not slack or no dust adheres to it, etc. After making sure that there is no abnormality, reinsert the cassette. If "TAPE" reappears, see "Troubleshooting" on page 57.

Removing a Cassette

Press the EJECT switch. "📼 EJECT" will appear on the LCD monitor, and the cassette door will open automatically. Remove the cassette.

Protecting Recorded Material

Protect 8mm cassettes from accidental erasure by sliding the tab on the side of the cassette towards the opposite side until the tab is completely visible. Slide the tab in the opposite direction, until the tab disappears, to record on the cassette again.



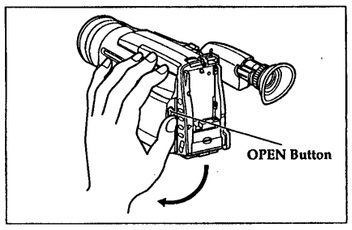
LCD Monitor

When using the LCD monitor during recording and playback, you can adjust the brightness of its screen and the angle of the monitor.

Opening the LCD Monitor

1. Press the OPEN button to open the LCD monitor.

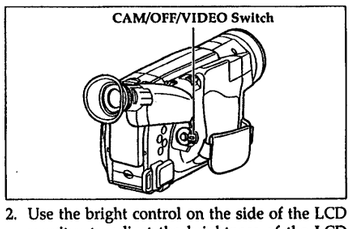
   Note: Opening or closing the LCD monitor switches the picture so that it appears on the LCD monitor or in the viewfinder.



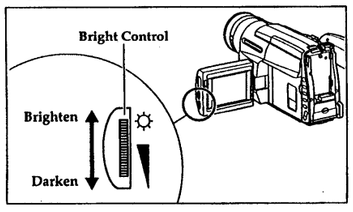
Adjusting the Brightness of the LCD Screen

Note: Even when the picture on the LCD monitor is adjusted, the recorded video will not change.

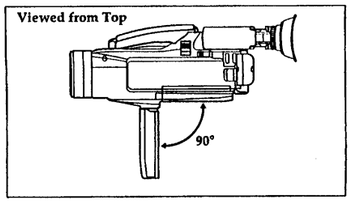
1. Load the battery ("Loading Batteries: Camcorder Batteries", p16). Press the red button on the CAM/OFF/VIDEO switch as you slide it to CAM or VIDEO.

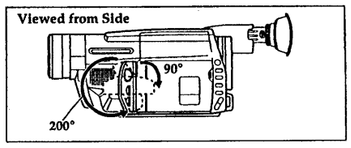


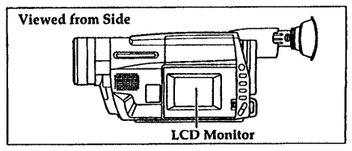
2. Use the bright control on the side of the LCD monitor to adjust the brightness of the LCD screen.



Range in which the LCD Monitor can be moved







Cautions on LCD Monitor Screen

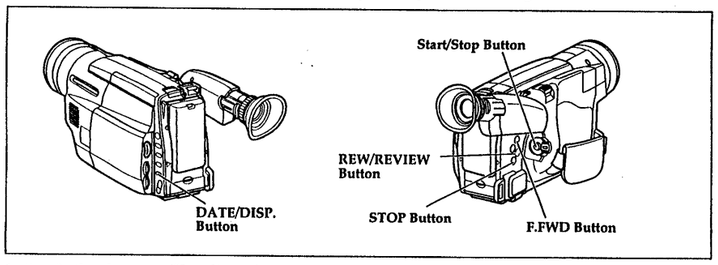
- Do not touch the LCD screen with your fingers as the screen could get dirty and the picture will not be seen clearly. If the LCD screen becomes dirty, use a soft cloth to wipe off the dirt.
- If the camcorder is used in a cold place and becomes too cold, the LCD screen will be dim for a while after the power is turned on. When the temperature inside the camcorder rises, the brightness of the picture will become normal.
- Do not hold by the LCD monitor as this could cause a malfunction.
- Open the LCD monitor by 90° before changing its direction. If you were to attempt to invert its direction before opening it completely, it could cause a malfunction.
- Close the LCD monitor after making sure it is parallel with the camcorder. If you were to close the monitor while it faces the same direction as the lens or it is diagonal, it could damage the LCD monitor.
- Do not disassemble the LCD monitor as this might cause a malfunction.
- When opening the LCD monitor, be careful that no water droplets adhere the monitor screen and that no water or dust enters the camcorder through the gap as it could cause a malfunction.

Setting the Date and Time

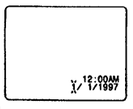
Take the time to set the date and time now. The date and time can be recorded on your tapes to act as a handy reference when viewing them later. Use the following procedure to set up the display for the current date and time.

Note: Be sure to insert the clock battery before setting the date and time. Although the date and time can be set without the clock battery inserted, they will disappear when the battery providing power to the camcorder is removed.

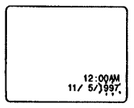
Make sure that the current time is displayed correctly before you start filming.



1. Load the battery ("Loading the Batteries: Camcorder batteries" p16). Press the red button on the CAM/OFF/VIDEO switch as you slide it to CAM.
2. Press the DATE/DISP. button and look into the viewfinder or LCD monitor. The date and time should appear in the lower right with the "1" flashing.

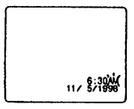


3. Pressing the F.FWD button gives you higher numbers while the REW/REVIEW button gives you lower numbers. Select the right month and press STOP button. Use the F.FWD, REW/REVIEW and STOP buttons to select the proper day, year, hour, minute, and AM or PM.



4. After setting the AM/PM, press the DATE/DISP. button. The display changes and the internal clock starts.

   Note: After the date and time are set, "🕒 AUTO" appears and the camcorder enters the automatic date recording mode. See "Date Recording" on page 35.



Correcting the Date and Time

1. Press the DATE/DISP. button while pressing the STOP button. The flashing cursor appears at the month.
2. Move to where you need to make the correction with the STOP button and use the F.FWD and REW/REVIEW to correct.
3. Press the DATE/DISP. button to set the corrected date and time.

Controlling Your TV with the Camcorder's Remote Control

The remote control is designed to be compatible with many televisions, but will not work with every one made. If your TV does not respond the way it should when you program it as explained below, this remote may be incapable of operating it.

Once you have programmed the remote, you won't have to do it again until you change the battery.

This remote control can be used with your TV as well as the camcorder, as long as your TV comes with a remote control. This feature comes in handy—you don't have to juggle two remotes.

The remote control is compatible with the fourteen makers of TVs listed on the next page—but don't be alarmed if yours is not on our list. You may still be able to program the remote for your TV.

Every TV that comes with a remote control is set up to detect certain infrared signals. You need to program the camcorder remote control to send signals that your TV will recognize and respond to. Here's what to do:

Programming the Remote Control

- Turn the television on (any channel is okay).
- Aim the camcorder's remote control at your TV set. Hold down the CH(▲) button while you press the button corresponding to your brand of television as shown in the chart (page 51).

For example, if you have an RCA television, press CH(▲) and DISPLAY at the same time. If this button combination sends a signal that matches your TV, the channel will change on the TV, and you'll know the remote is set to control the television.

- If that button combination does not change the TV channel, go through the whole list of button combinations one by one until you find one that does change your TV channel.

Also, if your brand of TV is not listed in the chart, try all the buttons. One of them may work for you.

If the TV channel still doesn't change after going through all the button combinations listed, it is likely that you will not be able to program this remote control for your TV.

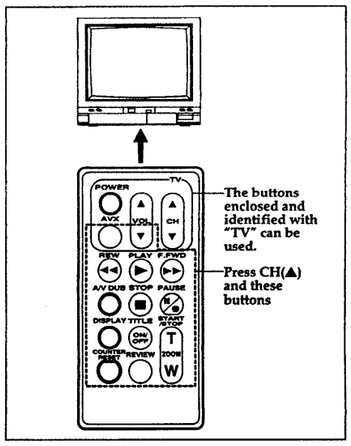
TV Brands	Press CH (▲) and This Button
Hitachi	AVX
Zenith	VOL (▼)
Sony	ZOOM. (W)
Magnavox	REW
Sanyo	PLAY
Gold Star 1	F.FWD
Toshiba	AV DUB
Gold Star 2	STOP
NEC	PAUSE (START/STOP)
RCA	DISPLAY
Panasonic	TITLE ON/OFF
Mitsubishi	ZOOM. (T)
JVC	COUNTER RESET
Sharp	REVIEW

Controlling the TV

Once programmed, the camcorder's remote control is ready to control the TV.

- Press the button of the TV function that you want.

Be aware that not all of your TV's functions may work even though the remote control is correctly programmed.



Note: It may not be possible to control all TVs listed in the Table.

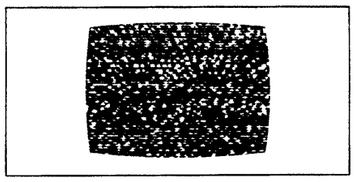
Note: The AVX Button can't be used with Gold Star 2 and Sharp TVs.

General Maintenance

Cleaning the Camcorder Heads

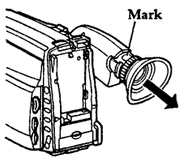
Dirt can accumulate on the video heads on the camcorder causing the playback picture to become blurred or appear as if video information is lost. This often means that the video heads are dirty. Use a video head cleaner such as a dry type head cleaning tape to clean the heads.

If after cleaning the heads the picture does not clear up consult your nearest dealer or VCR service center for professional head cleaning.

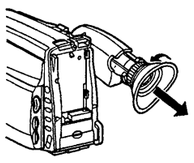


Cleaning the Lens and Picture Tube of the Electronic Viewfinder

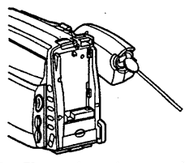
The lens of the electronic viewfinder can be user-cleaned if dust, dirt, or other foreign matter adheres to it.



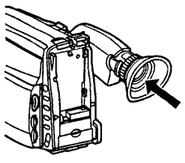
1. Pull out the eye cup to the position where a mark can be seen (up to a half where it is pulled out all the way). The side with the mark should be up.



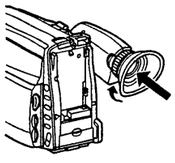
2. Turn the eye cup counterclockwise until it stops, then pull it out to remove.



3. Clean the picture tube face and lens. To prevent scratching, use a soft non abrasive cloth, swab or lens cleaning paper.



4. Face the rib up as shown above and push and the eye cup in until it stops.



5. Turn the eye cup clockwise until it stops, the push it in all the way.

Periodic Maintenance

A precision electromechanical device, the Hitachi VM-H835LA requires maintenance after a period of normal use. We expect that no maintenance other than head cleaning will be required during the period of warranty unless the camcorder is used either heavily or seldom. Defective parts are covered by the warranty. Normal maintenance is the responsibility of the owner. Consult your dealer or local VCR service center for recommendations regarding normal maintenance based on your use patterns, location, and the age of the camcorder.

Troubleshooting

Quality is very important at Hitachi. We inspect and check every camcorder carefully at the factory under the most rigid quality control and inspection systems. If problems develop please check the following possible solutions before inquiring about professional service.

INSERTING OR REMOVING THE CASSETTE

Symptom	Check Point & Correction
Cassette holder cannot be opened when you slide the EJECT switch.	• Connect the power source.
	• Open the LCD monitor, then slide the EJECT switch.
Cassette cannot be inserted into cassette compartment.	• Load cassette in direction indicated by arrow on cassette.
	• Cassette window must be toward outside.

CAMERA RECORDING

Symptom	Check Point & Correction
Picture does not appear in the viewfinder or LCD monitor.	• Open the lens door.
	• Slide the CAM/OFF/VIDEO switch to CAM.
	• Disconnect the AV input cable from the camcorder.
The camcorder cannot go into the recording mode, even when the start/stop button is pressed.	• Check the record-protect tab on the cassette. See page 18 for details.
	• Push the cassette holder embossed PUSH LOCK to close it.
	• Slide the CAM/OFF/VIDEO switch to CAM.
Picture is out of focus. Auto-focus does not operate.	• Make sure that "FOCUS" does not appear in the viewfinder or LCD monitor. If it is displayed, press FOCUS Control buttons to erase it.
	• Auto-Focus does not operate if a special-effects filter is attached or the objects shown on page 25 are being recorded.
The created title does not appear.	• Insert the clock battery, then create a title.
	• Do not remove the clock battery after creating a title.

TAPE DISPLAY

Symptom	Check Point & Correction
"TAPE" appears in the viewfinder or LCD monitor.	• Have you moved the camcorder or cassette from a cold place to a warm place so that its temperature changed abruptly? If the temperature has changed, remove the cassette and set the CAM/OFF/VIDEO switch to OFF; then wait for about one hour. • Remove the cassette and then try to reinsert: remove it several times. If the indication is still shown in the viewfinder, use a cleaning tape to clean the heads and replace the cassette.

RECORDING TV PROGRAMS OFF THE AIR

Symptom	Check Point & Correction
The camcorder cannot be set to the recording mode, even when the Start/Stop button on the camcorder is pressed.	• Check the record-protect tab on the cassette. See page 18 for details. • Set the CAM/OFF/VIDEO switch to CAM. • Connect the camcorder and TV or VCR.

PLAYBACK OF PRERECORDED CASSETTE

Symptom	Check Point & Correction
The PLAY button cannot be engaged.	• Set the CAM/OFF/VIDEO switch to VIDEO.
No picture appears on television screen when the PLAY button is pressed. (TV is connected to the camcorder by using RF output adapter.)	• Set the television to the camcorder channel (3or4) depending upon the selected channel in the RF channel select switch of RF output adapter.
Interference on playback picture. (TV is connected to the camcorder by using RF output adapter.)	• When you see the playback picture on your TV, adjust fine tuning knob on television set to obtain best picture.
Picture bends at the top of TV screen.	• TV receiver is of older type. It needs to be modified to work properly with camcorder. • Tape is damaged. Try another cassette.
Color of your TV screen is too bright, too faint or change.	• TV set has VIR circuit. Turn it off during playback.
Date search function does not operate.	• Slide the CAM/OFF/VIDEO switch to VIDEO. • Insert the clock battery, set the date and time, then start recording. • Do not remove the clock battery after recording. • Do not eject the recorded cassette. Leave it in the camcorder.

BATTERY CONDITION

Symptom	Check Point & Correction
The (▬) indication in the electronic viewfinder or LCD monitor flashes to indicate battery is discharged.	• Try another battery or charge the battery.
The battery level indicator (▭) appears differently on the LCD monitor and in the viewfinder.	• This does not indicate a fault; it is because the power consumed by the LCD monitor and viewfinder is different.

NO OPERATION IS ACCEPTED

Symptom	Check Point & Correction
Power is turned on, but no button operations are accepted.	• Remove the power source and the date/title battery. And after about one minute, the display in the viewfinder or LCD monitor will be reset. Then set the information again.

E56

E57

CHAPTER 2 DISASSEMBLY

1. HOW TO SET TO THE EJECT STATE MANUALLY

This is not necessary for camera/recorders which are set to the eject state normally.

· This camera/recorder will not perform the eject peration unless the LCD monitor is open. Do the following if cassette cannot be ejected by pressing the EJECT button after a power supply is connected and the LCD monitor is opened. (Check the connection of PG905 on the VCA board (see Fig. 1-1) and LCD open/close switch.)

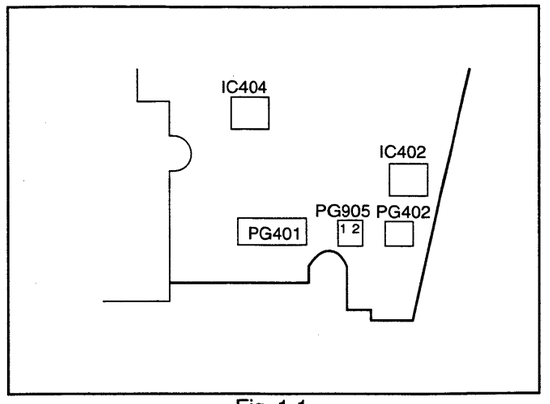


Fig. 1-1

1.1 REMOVE THE CASSETTE LID

<PROCEDURE>

(1) Lift the cassette lid in the direction of arrow (A) and insert tweezers between the cassette lid and left case. (Fig. 1-2)

(2) Release two tabs (C) of the plate spring in the cassette lid in the direction of arrows (B) and remove the cassette lid in the direction of arrow (D).

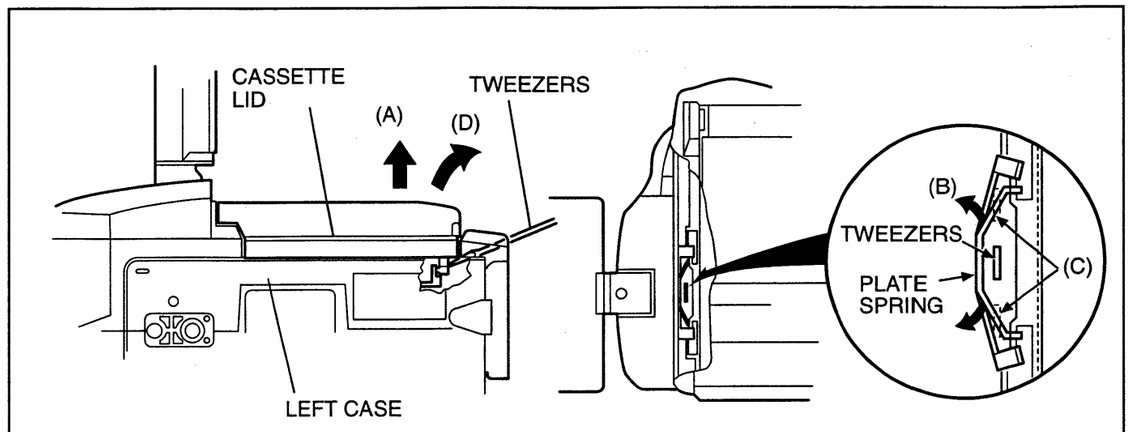


Fig.1-2

1.2 UNLOADING METHOD

If the electrical circuit is defective, apply a voltage to the connector terminals of the loading motor after the components up to the right case block are removed. The camera/recorder can be set to the eject state. (Fig. 1-3)

Be careful of the following when supplying power.

1.2.1 When the Loading Motor is Normal

(Fig. 1-3)

<PROCEDURE>

(1) Set the power supply to 3-5 V DC.

(2) Connect the red wire to the positive terminal and the brown wire to the negative terminal to activate unloading. Connect the brown wire to the positive terminal and the red wire to the negative terminal to activate loading.

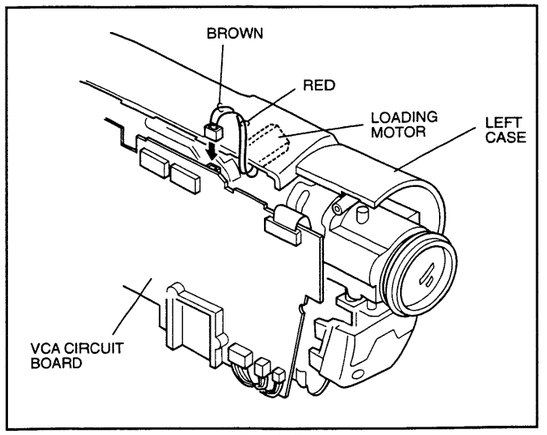


Fig.1-3

1.2.2 When the Loading Motor is Faulty

(Fig.1-4)

<PROCEDURE>

(1) Remove the following parts in advance, referring to subsequent items.
  1) Right case Block
  2) Main Block, Camera Block, Rear Case
  3) VCA Circuit Board, VCR Frame, Mechanism Block
  4) Loading motor

(2) Turn the Loading Gear (1) in the direction of arrow (F) to unload.

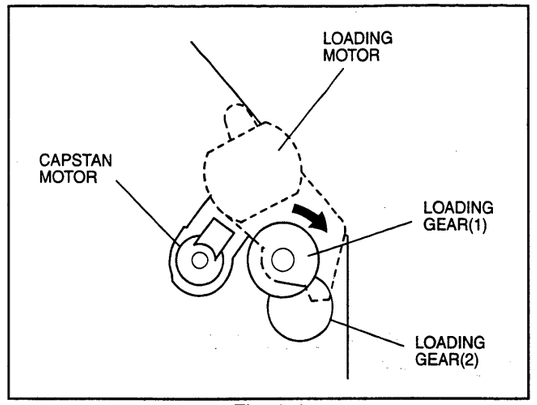


Fig. 1-4

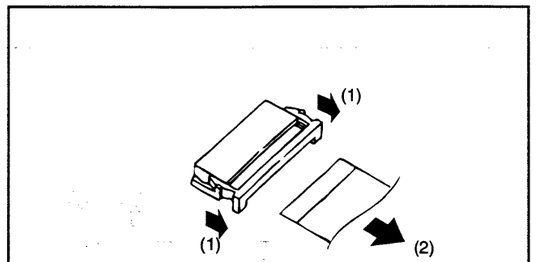
2. BEFORE STARTING DISASSEMBLY

(1) Be sure not to disassemble the lens block.

(2) Set the camera/recorder to the eject state before dismantling it. If the camera/recorder will not enter the eject state due to a defect, refer to "1. HOW TO SET TO THE EJECT STATE MANUALLY".

(3) This camera/recorder will not perform the eject operation unless the LCD monitor is open. To set it to the eject state with the case dismantled, short PG905 pins 1 and 2 on the VCA board with a shorting clip, etc., and then press the EJ ECT button (See Fig. 1-1).

(4) Disconnect flat cables from connectors by the procedure shown in Fig. 2-1. Since many circuit boards in the camera/recorder are connected by in-board connectors, be sure to follow DISASSEMBLYwhen removing the circuit boards.



(1) Release the lock of the connector on the left and right simultaneously.
(2) Pull out the flat cable.

Fig. 2-1

3. CASES AND CIRCUIT BOARD, MECHANISM BLOCK REMOVAL

Refer to the following "parts hierarchy chart" first when replacing defective parts. This chart shows the parts removal procedure as the hierarchy in which parts should be replaced.

How to use the parts hierarchy chart

(1) Search for the part to be replaced in the chart.

(2) Check the part in the rank above the part to be replaced and then start dismantling.

(3) Replace the defective part and install it by the reverse procedure to that in the hierarchy chart.

(4) **[Procedure when removing]**
Remove the components in the order of letter (1, 2, 3....) in the illustrations.
[Procedure when reinstalling]
Reinstall the components by the reverse procedure to removal when not otherwise specified.

PARTS HIERARCHY CHART

Note: Components marked * can be taken apart without removing the cassette lid.

Parts Name	Page
Cassette Lid	2-4
*Right Case Block	2-4
*EVF Block	2-5
*CRT Type EVF	2-9
*Color LCD Type EVF	2-9
*Camera/Off/VCR & Zoom Switches	2-5
*Hand Strap & Right Case	2-5
*Lens Ring	2-4
Main Block	2-6
Camera Block	2-6
VCA Circuit Board	2-7
VCR Frame	2-7
Mechanism Block	2-7
Rear Case	2-6
MIC Unit	2-6
IR Filter	2-6
Left Case Block	2-6
Lens Block	2-7
SE Circuit Board	2-7
CCD Image Sensor	2-7
Speaker	2-8
LCD Open/Close Switch	2-8
LCD Bottom Case	2-8
LCD Block	2-8
LCD Top Case	2-8
LCD Circuit Board	2-8
LCD Stopper	2-8
Back Light	2-8
LCD Panel	2-8

3.1 CASSETTE LID, RIGHT CASE BLOCK, LENS RING (Fig. 3-1)

<CAUTION>

1) Set the unit to the eject state. (This camcorder will not perform the eject operation unless the LCD monitor is open.)
2) The rubber o-ring is removed on its own when the lens ring is removed. Be sure to reinstall the rubber ring as shown in Figure A.
3) Open the AV output jack covers of right side before removing the right case block.

<PROCEDURE>

· Cassette Lid Removal: (1)-(2)
· Right Case Block & Lens Ring Removal: (3)-(4)-(5)-(6)-(7)-(8)

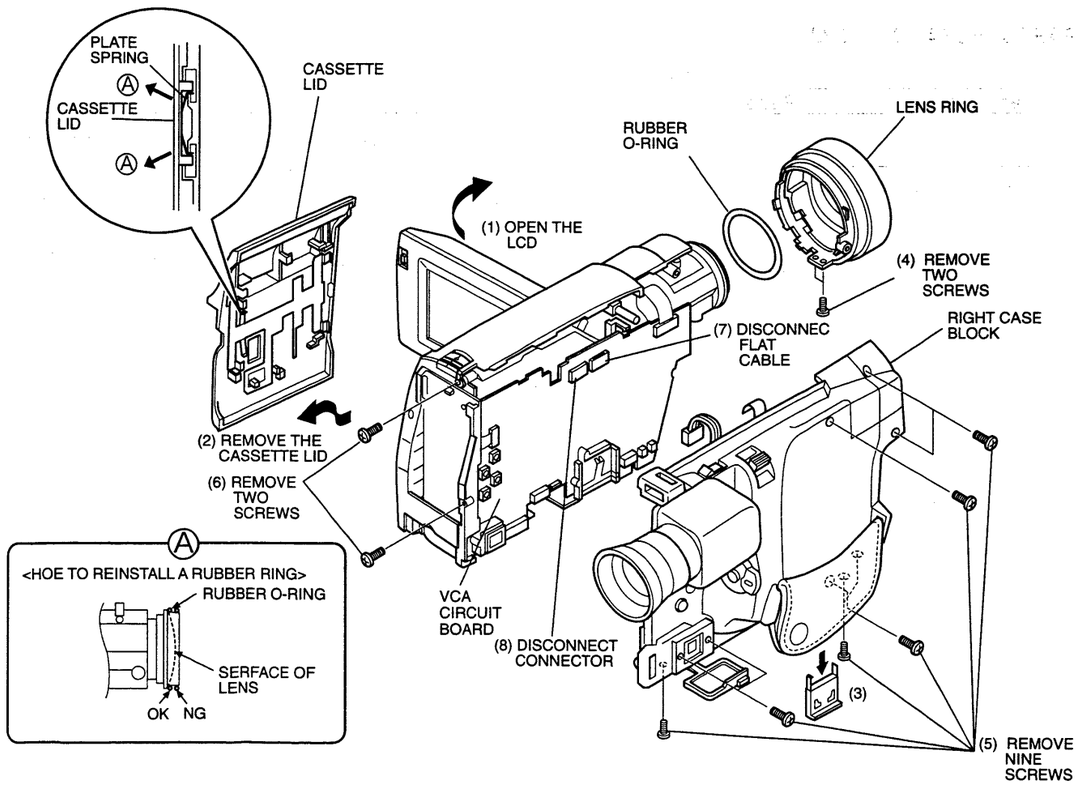


Fig. 3-1

3.2 CAMERA/OFF/VCR & ZOOM SWITCHES, EVF BLOCK, HAND STRAP, RIGHT CASE (Fig. 3-2)

<CAUTION>

1) The EVF plate and plate spring are removed on their own when the EVF block is removed.

<PROCEDURE>

· EVF Block Removal: (1)
· Camera/Off/VCR & Zoom Switches Removal: (2)-(3)
· Hand Strap & Right Case Removal: (2)-(3)-(4)-(5)

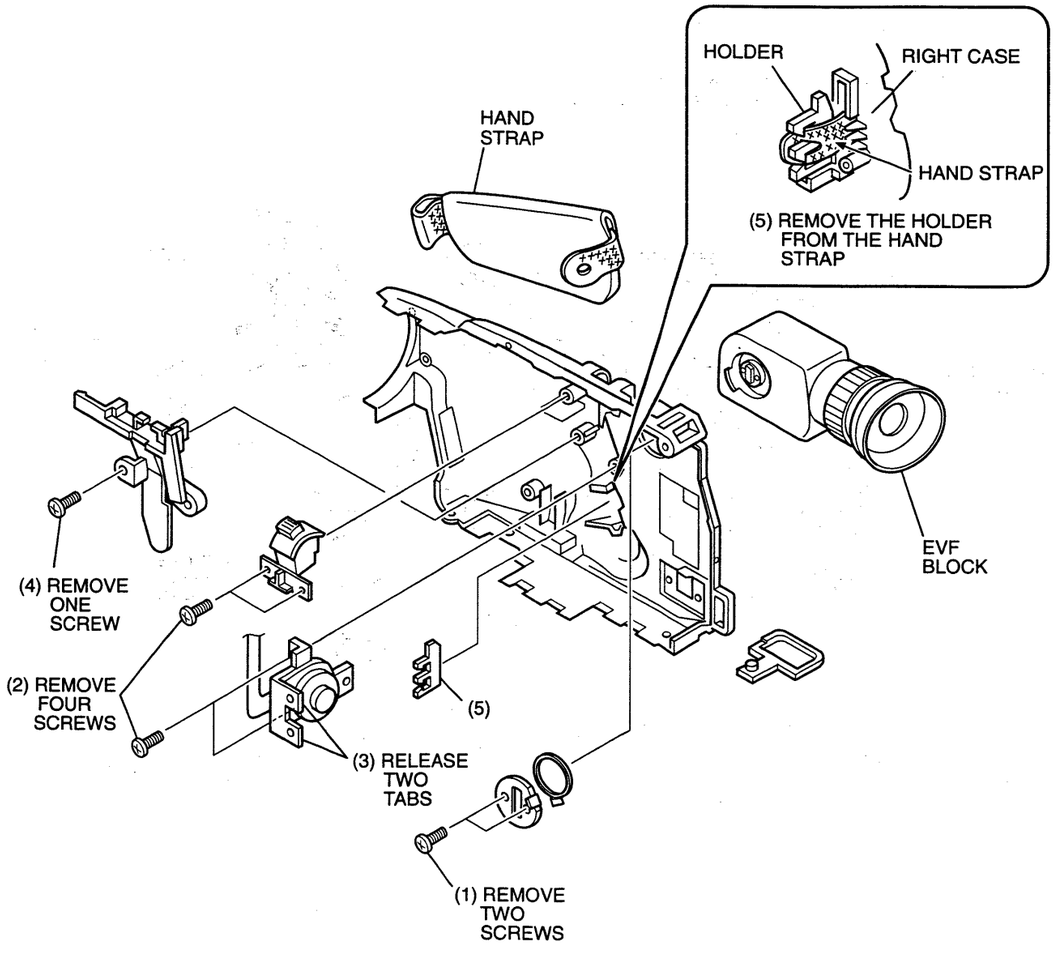


Fig. 3-2

3.3 MAIN BLOCK, CAMERA BLOCK, REAR CASE, MIC (MICROPHONE) UNIT, IR FILTER, LEFT CASE BLOCK (Fig. 3-3)

<CAUTION>

1) Open the AV output jack covers of rear side before removing the rear case.

<PROCEDURE>

· Main Block & Camera Block Removal:
(1)-(2)-(3)-(4)-(5)-(6)-(7)-(8)-(9)

· Rear Case Removal: (1)-(2)-(3)-(4)-(5)-(6)-(7)-(8)-(9)-(10)

· MIC Unit, IR Filter & Left Case Block Removal:
(1)-(2)-(3)-(4)-(5)-(6)-(7)-(8)-(9)-(10)-(11)-(12)-(13)

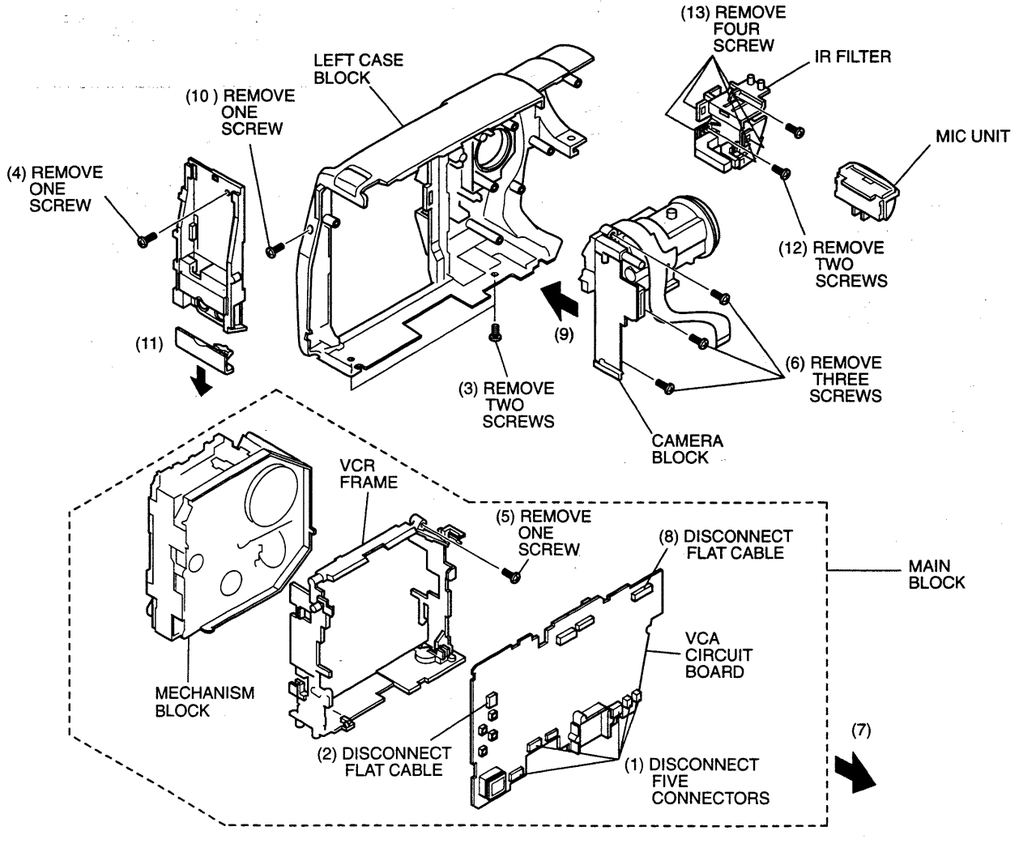


Fig. 3-3

3.4 VCA CIRCUIT BOARD, VCR FRAME, MECHANISM BLOCK (Fig. 3-4)

<PROCEDURE>

· VCACircuit Board Removal: (1)-(2)-(3)-(4)-(5)

· VCR Frame & Mechanism Block Removal:
(1)-(2)-(3)-(4)-(5)-(6)-(7)

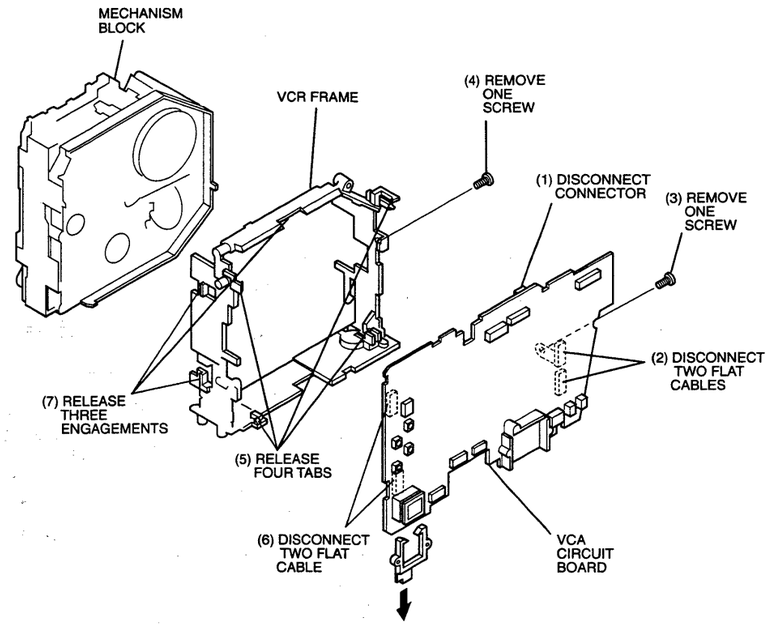


Fig. 3-4

3.5 LENS BLOCK, SE CIRCUIT BOARD, CCD IMAGE SENSOR (Fig. 3-5)

<CAUTION>

1) When the lens block is removed, the crystal filter and sensor rubber are removed on their own. Be careful not to damege the crystal filter.
2) Be sure not to disassemble the lens block. Otherwise the camera/recoder will not operate nomally.

<PROCEDURE>

· Lens Block Removal: (1)-(2)-(3)

· SE Circuit Board & CCD Image Sensor Removal:
(1)-(2)-(3)-(4)-(5)

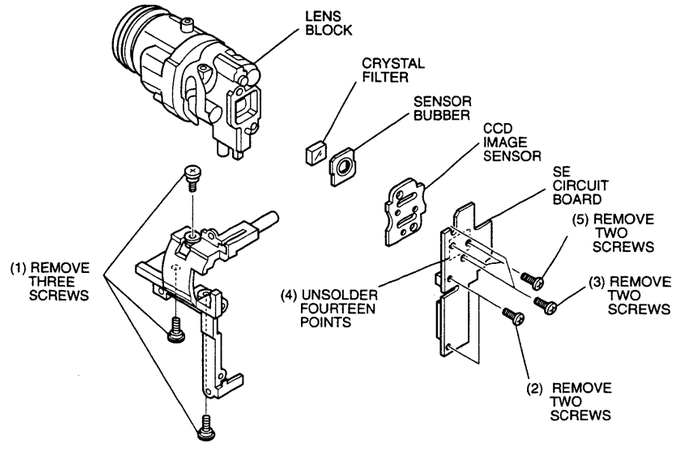


Fig. 3-5

3.6 SPEAKER, LCD OPEN/CLOSE SWITCH, LCD BOTTOM CASE, LCD BLOCK, LCD STOPPER (Fig. 3-6)

<CAUTION>

1) Be careful that the LCD screen is not damaged or smudged. (If dirt adheres to it, use a soft cloth to wipe it off.)
2) Handle the LCD panel, light sheet and backlight with extreme care.

<PROCEDURE>

- Speaker Removal: (1)-(2)
- LCD Open/Close Switch Removal: (1)-(3)-(4)
- LCD Bottom Case Removal: (1)-(3)-(5)-(6)-(7)-(8)-(9)
- LCD Block Removal: (1)-(3)-(5)-(6)-(7)-(8)-(9)-(10)-(11)-(12)
- LCD Stopper Removal: (1)-(3)-(5)-(6)-(7)-(8)-(9)-(10)-(11)-(12)

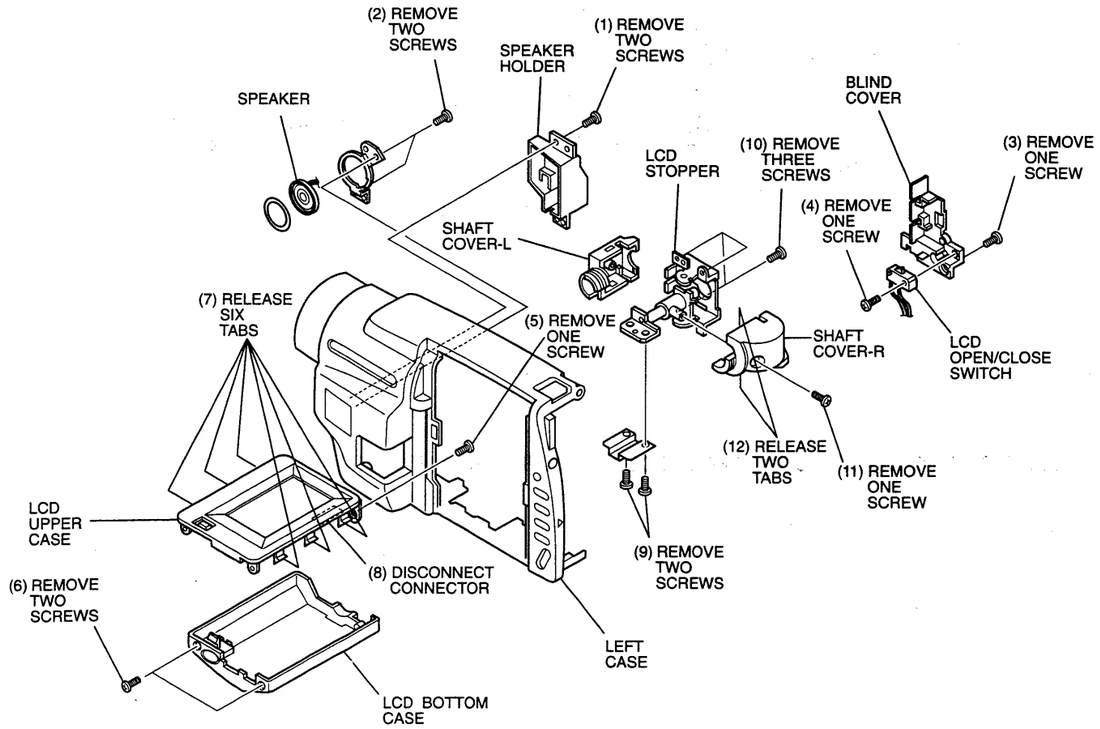


Fig. 3-6

3.7 LCD TOP CASE, LCD CIRCUIT BOARD, BACK LIGHT, LCD PANEL (Fig. 3-7)

<CAUTION>

1) Be careful that the LCD screen is not damaged or smudged. (If dirt adheres to it, use a soft cloth to wipe it off.)
2) Handle the LCD panel, light sheet and backlight with extreme care.

<PROCEDURE>

- LCD Top Case Removal: (1)
- LCD Circuit Board Removal: (1)-(2)-(3)
- Back Light & LCD Panel Removal: (1)-(2)-(3)-(4)

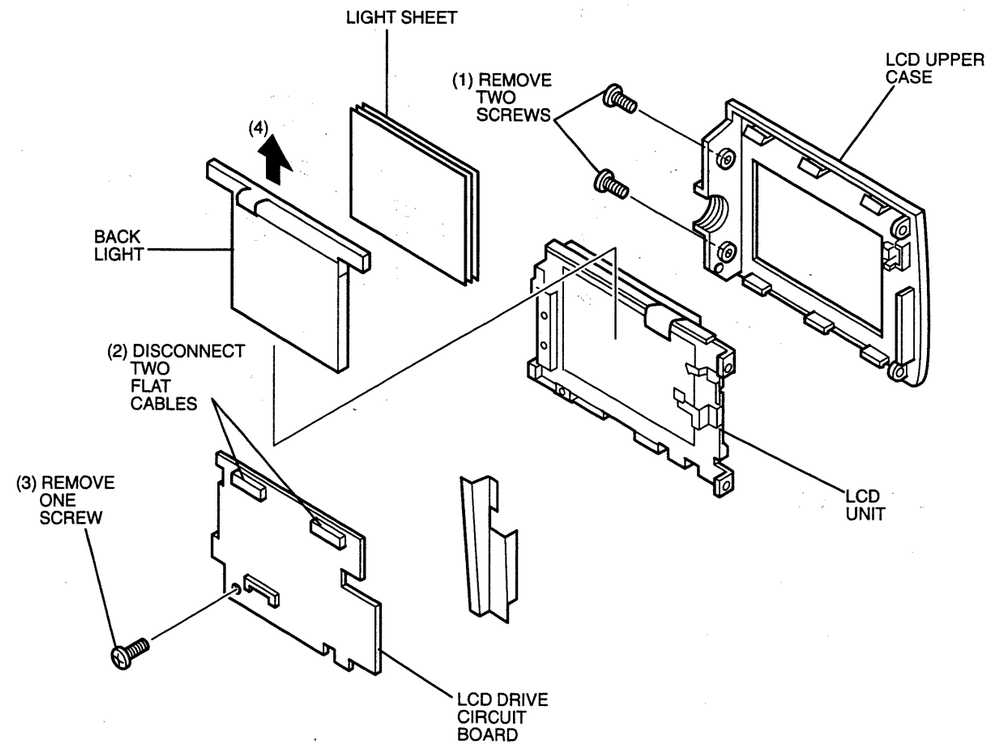


Fig. 3-7

3.8 CRT TYPE EVF (Fig. 3-8)

<CAUTION>

1) Be careful that the CRT is not subject to shocks.

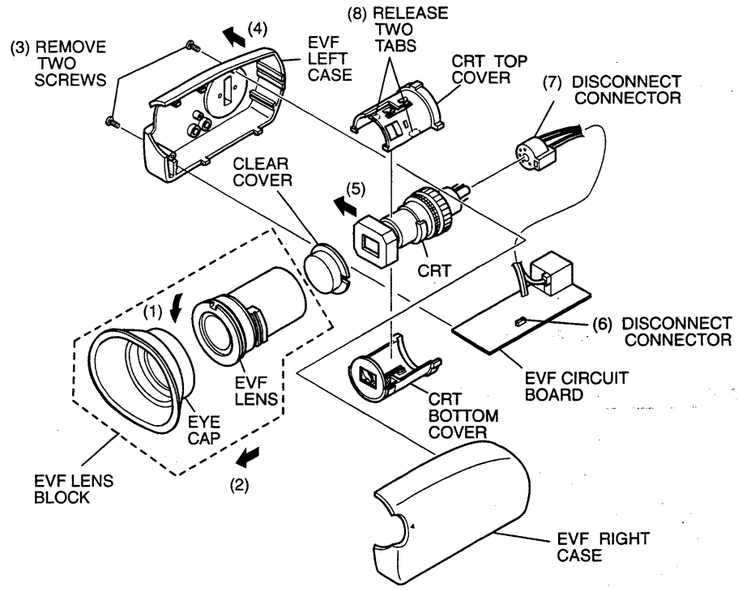


Fig. 3-8

3.9 COLOR LCD TYPE EVF (Fig. 3-9)

<CAUTION>

1) Be careful that the LCD screen is not damaged or smudged. (If dirt adheres to it, use a soft cloth to wipe it off.)
2) Handle the LCD panel and backlight with extreme care.

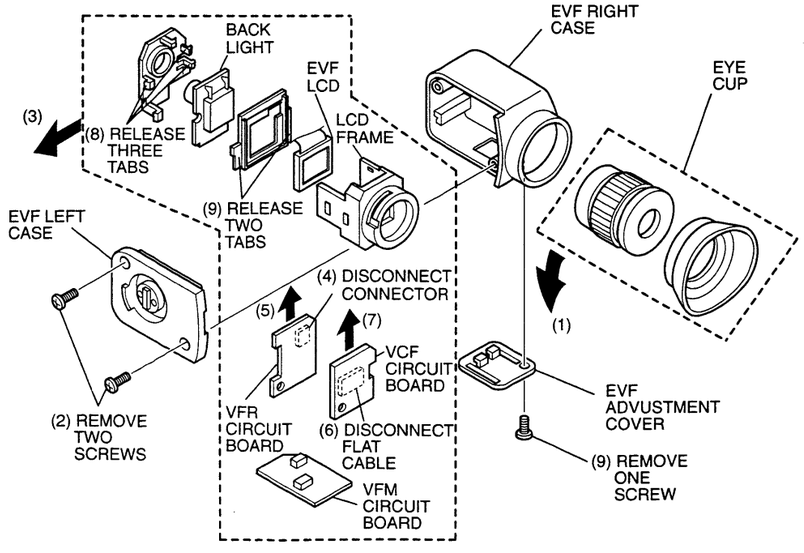


Fig. 3-9

CHAPTER 3 ELECTRIC CIRCUIT ADJUSTMENT

Abbreviation
MAP: Digital adjustment program .
DSP: Digital signal processor

1. CONNECTION FOR ADJUSTMENT

- Most adjustment items can be done without dismantling the camera/recoder.
- Connect the EVF to display the operation mode on the monitor screen.

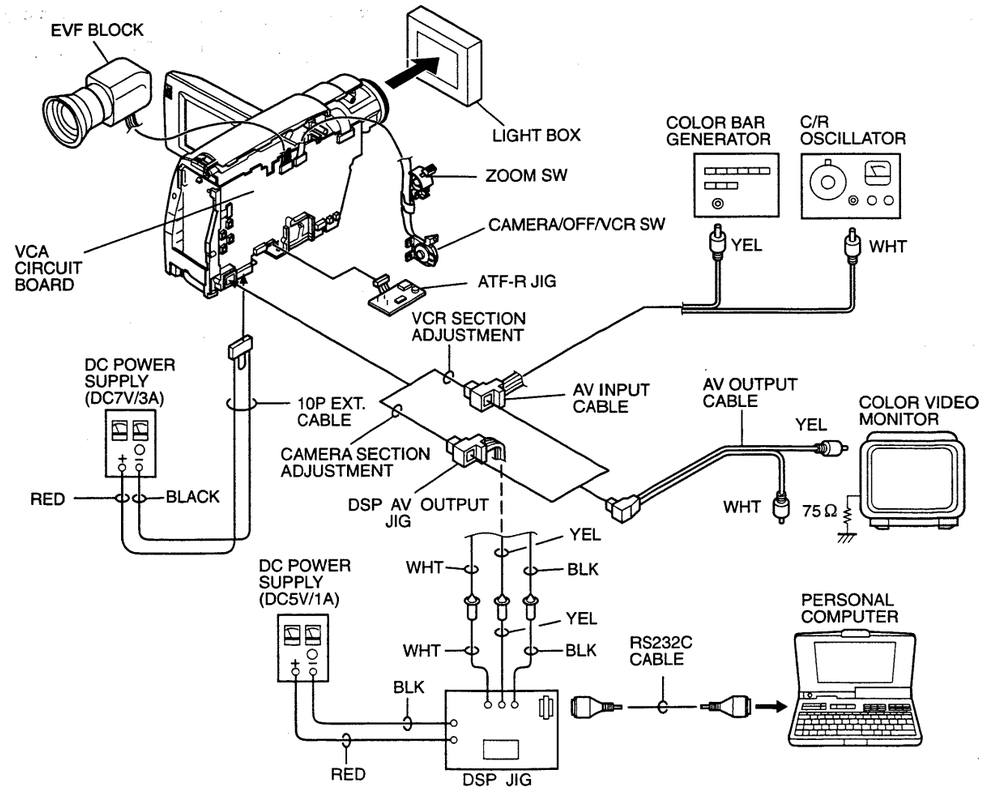


Fig. 1-1 Connection for adjustment

2. CAMERA SECTION ADJUSTMENT

2.1 CIRCUIT BOARD LOCATIONS

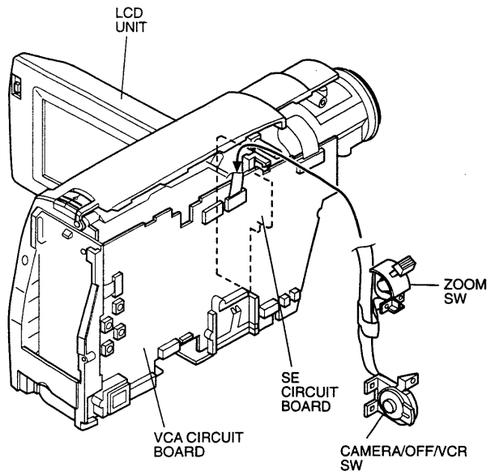


Fig. 2-1

2.2 TEST EQUIPMENT AND CHARTS NECESSARY FOR ADJUSTMENT

Test Equipment

- Oscilloscope (dual trace) [& Vectorscope]
- Digital Voltmeter (DVM)
- Frequency Counter
- Color Video Monitor

Charts, etc.

- Adjustment Floppy Disk
- Personal Computer
- Personal Computer 9-pin or 25-pin (RS232C) Cable
- DSP-R Jig
- DSP AV Output Jig
- Light Box (3100°K)
- Gray Scale Chart
- Color Bar Chart
- Resolution Chart
- Backfocus Adjustment Chart
- Light Balancing Filter C12
- DC Power Supply (DC7V/3A)
- DC Power Supply (DC5V/1A)

2.3 ADJUSTMENT CONDITION

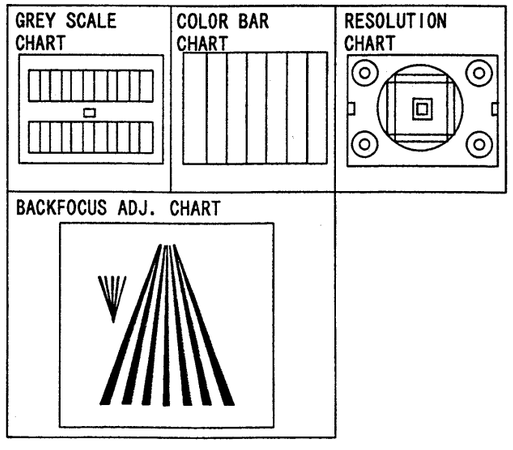
1) Check that the VCR section has been adjusted correctly before adjusting the camera section.
2) Use a light box with minimum flickering.
   Control the color temperature of the light box strictly.
3) Connect this unit, a power supply and a color video monitor as shown in Fig. 1-1.
4) When using the video out (AV OUT) to perform adjustment, be sure to terminate the AV OUT jack with 75 ohms.
5) Place the chart (light box) approx. 30cm away from the camera (lens surface) when otherwise not specified.
6) Point the camera at the chart to full the video period when otherwise not specified.
7) Use the 10:1 probe of the oscilloscope when otherwise not specified.
8) When "Trigger the oscilloscope internally" is specified, set the time base of the oscilloscope to 10μs/div.

2.4 PRESET POSITIONS OF SWITCHES AND CONTROLS DURING ADJUSTMENT

- CAMERA/OFF/VIDEO switch ····· "CAMERA" position
- INST. ZOOM ····· Not Display mode
- DATE ····· Not Display mode
- DISPLAY ····· Not Display mode
- TITLE ····· Not Display mode
- FOCU ····· SAutofocus mode
- E.I.S ····· OFF mode
- 16 × 9 ····· OFF mode
- FADE ····· OFF mode

2.5 LIST OF CHARTS FOR CAMERA ADJUSTMENT

Table 2-1



2.6 CHECK AFTER REPLACING MAJOR COMPONENTS IN THE CAMERA SECTION

After replacing major components, perform adjustments, referring to the table below.
The following table shows the minimum adjustments required after major components are replaced.
The table below may not apply when several components are replaced, depending on the symptom of the defect.
Caution: When EEP ROM or the VCA circuit board is replaced, initialize the EEP ROM, referring to "2.7.3 Initial Setting by Model" then perform all the camera section and system control/servo circuits adjustments.

ITEM No.	NAME OF ADJUSTMENT	NAME OF MAJOR COMPONENTS										
		SE Board	VCA Board	IC1001	IC1102	IC1104	IC1105	IC1201	IC1401 IC1402	IC1403	Lens Block	
----	Initial Setting by Model		◇				◇					
ELECTRIC VOLUME ADJUSTMENT PROCEDURE												
(1)	CDS Sampling Pulse Adjust.		◇		◇		◇					
DIGITAL ADJUSTMENT PROCEDURE												
(1)	Auto Iris Control Adjustment	◇	◇	◇		◇	◇	◇			◇	
(2)	Matrix Adjustment	◇	◇	◇			◇					
(3)	White Balance Adjustment	◇	◇	◇			◇					
(4)	Chroma Gain Adjustment	◇	◇	◇			◇					
AUTO FOCUS ADJUSTMENT PROCEDURE												
(1)	Zoom Trace Adjustment	◇	◇	◇			◇				◇	
(2)	AF Noise Level Adjustment	◇	◇	◇			◇				◇	
STABILIZER ADJUSTMENT PROCEDURE												
(1)	Stabilizer Adjustment	◇	◇				◇		◇	◇		
SPOT NOISE ADJUSTMENT PROCEDURE												
(1)	Spot Noise Adjustment	◇	◇				◇					

2.7 CAMERA SECTION ADJUSTMENT PROCEDURE

Note

1) To complete adjustment, press the ESC (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.
2) The folloeing describes an example of the instructions of the personal computer and the menu display; they are different depending on the personal computer manufacturer and model. Refer to the instruction manual of personal computer.
3) When the error message appears during adjustment, refer to "4. Error Message". If a key is pressed after an error message appears, the ADJUSTMENT MENU is restored.

2.7.1 Connections for Adjustment

Connect the camera/recorder, DSP jig, personal computer, power supply, etc. as shown in Fig. 1-1.
Check that the camera/recorder is turned on.

2.7.2 How to start the MAP

<PROCEDURE>

1) Turn the personal computer on and start the MS-DOS system. (Fig. 2-2)
2) Load the adjustment floppy disk into disk
   · drive A and press **A:** then [ENTER].
   or
   · drive B and press **B:** then [ENTER].
   (Fig. 2-3)
3) Press **MAP_IBM** [SPACE] **1** [ENTER].
   The MAP starts and the MODEL SELECT shown Fig. 2-6 appears.
   When you use a personal computer with two serial interface connectors and connect the DSP jig to serial interface connector 2, press MAP_IBM 2.
4) Select the number accodding to the model.
   If [ESC] (escape) is pressed, the display before the MAP starts (MS-DOS) is restored.
5) Press **Y** key. (Fig. 2-7)
   If **N** key is pressed, the computer's display returns to Fig. 2-6 (MODEL SELECT).

Note

1) If you specify the wrong model, press [ESC] (escape) to restore the MODEL SELECT display, then specify the correct model.
2) If you select number without a model name by mistake, the message shown in Fig. 2-9 will appear in the computer's display.
   Press any key to return the display to Fig. 2-6 (MODEL SELECT).
3) If the required model is not found, press the **P** key and select the model from the next screen.

MESSAGE WHEN OPERATED BY MISTAKE

```
Can not find the DATA FILE
**** PRESS ANY KEY ****
```

Fig. 2-9

```
C>
```

Fig. 2-2

LOAD THE CAMERA ADJ. FLOPPY DISK INTO DISK DRIVE B

Press **A :** [ENTER]

```
C>A:
A>
```

Fig. 2-3

Press **MAP_IBM** [SPACE] **1** [ENTER]

```
C>
A>MAP_IBM 1
```

Fig. 2-4

```
Manual adjustment program for service station
Copyright (C) Hitachi LTD
```

Fig. 2-5

```
**************************************************
                MODEL SELECT
**************************************************
          [1]     ×××××××
          [2]     ×××××××
          [3]     ×××××××
          [4]     ×××××××
          [5]     ×××××××
          [P]     NEXT SELECTION
          [ESC]   END
        Please select the type of the set.
     Press [1] - [5] or [P] or [ESC]
```

Fig. 2-6

Press numeric key

```
Selected model is ×××××××
Are you sure ? (Y/N)
```

Fig. 2-7

Press **Y**

MAIN MENU

```
**************************************************
          MANUAL ADJUSTMENT PROGRAM
**************************************************
          [A]     DATA INITIALIZE
          [B]     ELECTRIC VOLUME
          [C]     ADJUSTMENT
          [D]     VCR ADJUSTMENT
          [E]     AUTO FOCUS
          [F]     EIS
          [G]     SPOT NOISE
          [H]     EVF
          [ESC]   END
        Please select [A] - [H] or [ESC]
```

Fig. 2-8

2.7.3 Initial Setting by Model

Before Starting Initial Setting

1) This item describes how to initialize the EEP ROM. Be sure to perform this item after replacing EEP ROM or the VCA circuit board. When other components are replaced, normally, it is not necessary to initialize the EEP ROM.
   Press [ESC] (escape) to return the computer's display to MAIN MENU.
2) Be sure to perform the following adjustments after completing the initial setting.
   - 2.7.4 Electric Volume Adjustment Procedure
   - 2.7.5 Digital Adjustment Procedure
   - 2.7.6 Autofocus Adjustment Procedure
   - 2.7.7 Stabilizer Adjustment Procedure
   - 2.7.8 Spot Noise Adjustment Procedure
   - 2.9 LCD Color EVF Adjustment Procedure
   - 3.7 System Control/Servo Circuits Adjustment

<PROCEDURE>

1) Start the MAP.
2) Press **A** key to select INITIALIZE. (Figs. 2-10, 2-11)
3) Press **Y** key to start. (Figs. 2-11, 2-12)
   Press **N** to return to MAIN MENU. (Fig. 2-11)
4) If there are no abnormalities in the camera/recorder, the message shown in Fig. 2-12 is displayed in the computer's display for a while, and then the message informing you that the initial setting has been completed (shown in Fig. 2-13) is displayed.
5) If the message shown in Fig. 2-13 appears in the computer's display, press any key.
   The computer's display returns to Fig. 2-10 (MAIN MENU).

MAIN MENU

```
**************************************************
          MANUAL ADJUSTMENT PROGRAM
**************************************************
          [A]     DATA INITIALIZE
          [B]     ELECTRIC VOLUME
          [C]     ADJUSTMENT
          [D]     VCR ADJUSTMENT
          [E]     AUTO FOCUS
          [F]     EIS
          [G]     SPOT NOISE
          [H]     EVF
          [ESC]   END
        Please select [A] - [H] or [ESC]
```

Fig. 2-10

Press **A**

```
« DATA WRITING »
START TO SEND DATA.  (Y/N)
```

Fig. 2-11

Press **Y**

```
« DATA WRITING »
PLEASE WAIT A MOMENT.
```

Fig. 2-12

```
« DATA WRITING »
PLEASE WAIT A MOMENT.
FINISHED WRITING DATA.
PRESS ANY KEY.
```

Fig. 2-13

Press any key to return to Fig. 2-10

2.7.4 Electric Volume Adjustment Procedure

Before Starting Adjstment
When EEP ROM or the VCA circuit board is replaced, initialize the EEP ROM, referring to "2.7.3 Initial Setting By Model" then perform all the electric volume adjustments.

<PROCEDURE>
1) Start the MAP.
2) Press B to select ELETRIC VOLUME. (Figs. 2-14, 2-15)
3) Select the number of the required adjustment.

Note
1) If [ESC] (escape) is pressed, the computer's display returns to Fig. 2-14 (MAIN MENU).
2) To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

MAIN MENU

```
**************************************************
        MANUAL ADJUSTMENT PROGRAM
**************************************************
    [A]     DATA INITIALIZE
    [B]     ELECTRIC VOLUME
    [C]     ADJUSTMENT
    [D]     VCR ADJUSTMENT
    [E]     AUTO FOCUS
    [F]     EIS
    [G]     SPOT NOISE
    [H]     EVF
    [ESC]   END
    Please select [A] - [H] or [ESC]
```

Fig. 2-14

Press **B**

ELECTRIC VOLUME ADJ. MENU

```
**************************************************
        ELECTRIC VOLUME
**************************************************
    [1]     CDS SAMPLING PULSE
    [ESC]   RETURN TO MAIN MENU
    Please select [1] or [ESC]
```

Fig. 2-15

(1) CDS Sampling Pulse Adjustment

Purpose	· To suppress noise in the CCD sensor output signal and maximize the signal level.
Incompleted Phenomenon	· Diagonal beats and horizontal noise occur.
Condition	· Leave the camera/recorder for more than 2 minutes untill the circuits are stabilized after turing it on, then start adjustment.

<PROCEDURE>

ELECTRIC VOLUME ADJ. MENU

```
**************************************************
        ELECTRIC VOLUME
**************************************************
    [1]     CDS SAMPLING PULSE
    [ESC]   RETURN TO MAIN MENU
    Please select [1] or [ESC]
```

Press **1** key to select the CDS SAMPLING PULSE.

```
« ADJUSTMENT OF CDS SAMPLING PULSE »
« NOW ADJUSTING »
```

```
« ADJUSTMENT OF CDS SAMPLING PULSE »
FINISHED WRITING DATA.
ADJUSTMENT COMPLETED.
PRESS ANY KEY.
```

Press any key to return to ELECTRIC VOLUME MENU.

2.7.5 Digital Adjustment Procedure

Before Starting Adjstment
When EEP ROM or the VCA circuit board is replaced, initialize the EEP ROM, referring to "2.7.3 Initial Setting By Model" then perform all the digital adjustments.

Note
If an old light box is used , this adjustnment may not be done. Use the following procedure to adjust without using a light box.
- Illuminate a white sheet of paper using anappropriate light source of 2,000-2,500lux (a halogen light of 3,200K is desirable).
- Point the camera/recoder at the illuminated white sheet of paper to fill the screen as far as possible (at wide-angle).
- Adjust the distance between the camera/ recoder and white sheet of paper so that no error message appears.

<PRROCEDURE>
1) Start the MAP.
2) Press **C** to select ADJUSTMENT. (Figs. 2-16, 2-17)
3) Select the number of the required adjustment.

Note
1) If [ESC] (escape) is pressed, the computer's display returns to Fig. 2-16 (MAIN MENU).
2) To complete adjustment, press the [ESC] (escape) twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

MAIN MENU

```
**************************************************
        MANUAL ADJUSTMENT PROGRAM
**************************************************
    [A]     DATA INITIALIZE
    [B]     ELECTRIC VOLUME
    [C]     ADJUSTMENT
    [D]     VCR ADJUSTMENT
    [E]     AUTO FOCUS
    [F]     EIS
    [G]     SPOT NOISE
    [H]     EVF
    [ESC]   END
    Please select [A] - [H] or [ESC]
```

Fig. 2-16

Press **C**

ADJUSTMENT MENU

```
**************************************************
        ADJUSTMENT
**************************************************
    [1]     AUTO IRIS CONTROL
    [2]     MATRIX
    [3]     WHITE BALANCE
    [4]     CHROMA GAIN
    [ESC]   RETURN TO MAIN MENU
    Please select [1]- [4] or [ESC]
```

Fig. 2-17

(1) Auto Iris Control Adjustment

Purpose	· To set the iris control data.
Incompleted Phenomenon	· The picture becomes too bright. · The picture becomes too dark.
Condition	· Point the camera at the light box without a chart to full the screen (at wide-angle).

<PROCEDURE>

ADJUSTMENT MENU

```
**************************************************
                  ADJUSTMENT
**************************************************
        [1]     AUTO IRIS CONTROL
        [2]     MATRIX
        [3]     WHITE BALANCE
        [4]     CHROMA GAIN
        [ESC]   RETURN TO MAIN MENU
          Please select [1]- [4] or [ESC]
```

Press **1** key to select the AUTO IRIS CONTROL.

```
« ADJUSTMENT OF IRIS OPEN & CLOSE »
PLEASE WAIT AROUND 10 SEC.
```

```
« ADJUSTMENT OF IRIS OPEN & CLOSE »
PLEASE WAIT AROUND 10 SEC.
DATA WRITEN INTO EEPROM
ADJUSTMENT FINISHED
PRESS ANY KEY
```

Press any key, and the display changes as follows.

```
« ADJUSTMENT IRIS »
PLEASE WAIT AROUND 20 SEC.
```

$1

```
« ADJUSTMENT IRIS »
PLEASE WAIT AROUND 20 SEC.
ROUGH ADJUSTMENT     : ×× TIMES
FINE ADJUSTMENT      : ×× TIMES
ADJUSTMENT FINISHED
PRESS ANY KEY
```

Press any key, and the display changes as follows.

```
« ADJUSTMENT OF HALLCURVE »
PLEASE WAIT AROUND 30 SEC.
```

$2

```
« ADJUSTMENT OF HALLCURVE »
PLEASE WAIT AROUND 30 SEC.
                *
ADJUSTMENT POINT 0 1 2 3 4 5 6 7 8 9 A B C
```

```
« ADJUSTMENT OF HALLCURVE »
PLEASE WAIT AROUND 30 SEC.
                * **** ******* * * *
ADJUSTMENT POINT 0 1 2 3 4 5 6 7 8 9 A B C
DATA WRITEN INTO EEPROM
ADJUSTMENT FINISHED
PRESS ANY KEY
```

Press any key, and the display changes as follows.

```
ADJUSTMENT FINISHED
PRESS ANY KEY
```

Press any key to return to ADJUSTMENT MENU.

Turn the power off for 5 seconds and then on again.

Note

1) With some units the following parameter may not be displayed in the display marked *$1*.
   This is normal; continue adjustment.
   ROUGH ADJUSTMENT: ×× TIMES
2) The * mark flashes above the numerals and letters in sequence in the display marked *$2*.

(2) Matrix Adjustment (Fig. 2-18)

Purpose	· To compensate for uneveness in the chroma signal.
Incompleted Phenomenon	· Color reproduction becomes defective.
Test Point	· Video Out (AV OUT)
Equipment / Jig	· Oscilloscope
Condition	· Point at a color bar chart.

<PROCEDURE>

ADJUSTMENT MENU

```
**************************************************
                  ADJUSTMENT
**************************************************
        [1]     AUTO IRIS CONTROL
        [2]     MATRIX
        [3]     WHITE BALANCE
        [4]     CHROMA GAIN
        [ESC]   RETURN TO MAIN MENU
          Please select [1]- [4] or [ESC]
```

Press **2** Key to select the MATRIX.

```
« ADJUSTMENT OF BLUE MATRIX »
ROUGH ADJUSTMENT
[U]             UP
[D]             DOWN

FINE ADJUSTMENT
[Ctrl] + [U]    UP
[Ctrl] + [D]    DOWN

[ENTER]         RETURN TO MENU
[ESC]           QUIT
```

For Noemal 8 Molel:

Press the **D** key to minimize the yellow (YEL) level.
Press the **U** key so the ratio between yellow (YEL) and blue (BLU) levels is 3:8.
Press the [Ctrl] key and hold it down, then press the **U** and **D** keys so the ratio between yellow (YEL) and blue (BLU) levels is 3:8.

For Hi-8 Molel:

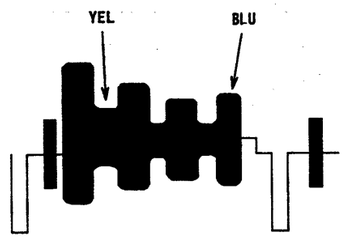
Press the **D** key to minimize the yellow (YEL) level.
Press the **U** key so the ratio between yellow (YEL) and blue (BLU) levels is 1:2.
Press the [Ctrl] key and hold it down, then press the **U** and **D** keys so the ratio between yellow (YEL) and blue (BLU) levels is 1:2.

Press [Enter] Key, and the dispaly changes as follows.

```
« ADJUSTMENT OF BLUE MATRIX »
DATA WRITING TO EEPROM
```

```
« ADJUSTMENT OF BLUE MATRIX »
ADJUSTMENT FINISHED
PRESS ANY KEY
```

Press any key to return to ADJUSTMENT MENU.



YEL : BLU
3 : 8 [For Normal 8]
1 : 2 [For Hi-8]

(200mV/50μs.div.)

Fig. 2-18

(4) White Balance Adjustment

Purpose	· To set white balance under the color temperature which becomes a reference for the auto white balance circuit.
Incompleted Phenomenon	· Color of the subject is different from that of the picture. · A white subject is not seen as white.
Test Point	· Video Out (AV OUT)
Condition	· Attach a C12 filter. · Point at a gray scale chart (at wide-angle).

<PROCEDURE>

ADJUSTMENT MENU

```
**************************************************
                  ADJUSTMENT
**************************************************
        [1]     AUTO IRIS CONTROL
        [2]     MATRIX
        [3]     WHITE BALANCE
        [4]     CHROMA GAIN
        [ESC]   RETURN TO MAIN MENU
          Please select [1]- [4] or [ESC]
```

Press **3** Key to select the WHITE BALANCE.

```
« WHITE BALANCE ADJUSTMENT »
INPUT DATA OF OFFSET  FOR R-B --> 00
```

For Normal 8 Model:
Press **1 9** to input the data.

For Hi-8 Model:
Press **1 5** to input the data.

Press [Enter] key, and the display changes as follows.

```
« WHITE BALANCE ADJUSTMENT »
INPUT DATA OF OFFSET  FOR Mg-G  --> 00
```

For Normal 8 Model:
Press **0**(ZERO) **B** to input the data.

For Hi-8 Model:
Press **0**(ZERO) **C** to input the data.

Press [Enter] key, and the display changes as follows.

```
« WHITE BALANCE ADJUSTMENT »
PLEASE WAIT A MOMENT.
```

```
« WHITE BALANCE ADJUSTMENT »
ADJUSTMENT COMPLETED.
COMPLETED EEPROM WRITE.
PRESS ANY KEY.
```

Press any key to return to ADJUSTMENT MENU.

(5) Chroma Gain Adjustment (Figs. 2-19, 2-20)

Purpose	· To set the color saturation under the reference color temperature.
Incompleted Phenomenon	· Color of the picture is denser than that of the subject. · Color of the picture is lighter than that of the subject.
Test Point	· Video Out (AV OUT)
Equipment / Jig	· Oscilloscope (Vectorscope)
Condition	· Attach a C12 filter. · Point at a color bar chart.

<PROCEDURE>

ADJUSTMENT MENU

```
**************************************************
                  ADJUSTMENT
**************************************************
        [1]     AUTO IRIS CONTROL
        [2]     MATRIX
        [3]     WHITE BALANCE
        [4]     CHROMA GAIN
        [ESC]   RETURN TO MAIN MENU
          Please select [1]- [4] or [ESC]
```

Press **4** Key to select the CHROMA GAIN.

```
« ADJUSTMENT OF CHROMA GAIN »
        ROUGH ADJUSTMENT
[U]             CHROMA GAIN UP
[D]             CHROMA GAIN DOWN

        FINE ADJUSTMENT
[Ctrl] + [U]    CHROMA GAIN UP
[Ctrl] + [D]    CHROMA GAIN DOWN

[ENTER]         SAVE & RETURN TO MENU
[ESC]           QUIT
```

WHEN USING AN OSCILLOSCOPE:
Press the **U** and **D** keys to set the red level to around 450mVp-p.
Press the [Ctrl] key and hold it down, then press the **U** and **D** keys so the red level is 450mV ± 20mVp-p.
(Fig. 2-19)

WHEN USING A VECTORSCOPE:
Press the **U** and **D** keys to set the red vector to around 160% of the burst.
Press the [Ctrl] key and hold it down, then press the **U** and **D** keys so the red vector is 160% ± 5%. (Fig. 2-20)

Press [Enter] key, and the display changes as follows.

```
« ADJUSTMENT OF CHROMA GAIN »
DATA WRITING INTO EEPROM.
```

```
« ADJUSTMENT OF CHROMA GAIN »
ADJUSTMENT FINISHED.
PRESS ANY KEY.
```

Press any key to return to ADJUSTMENT MENU.

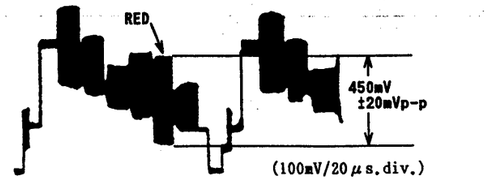


Fig. 2-19

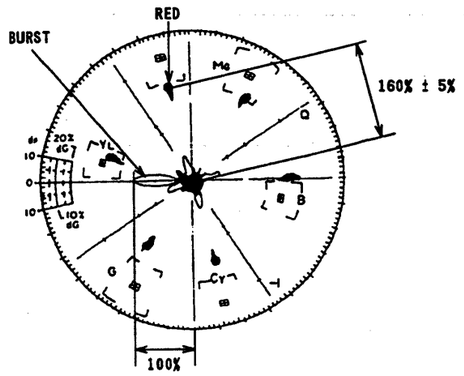


Fig. 2-20

2.7.6 Autofocus Adjustment Procedure

Before Starting Adjustment
Be sure to perform this adjustment after replacing or initializing the lens block, parts in the VCA circuit board (EEPROM).

<PRROCEDURE>
1) Start the MAP.
2) Press **E** to select AUTO FOCUS. (Figs. 2-21, 2-22)
3) Select the number of the required adjustment.

Note
1) If [ESC] (escape) is pressed, the computer's display returns to Fig. 2-21 (MAIN MENU).
2) To complete adjustment, press the [ESC] (escape) twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

MAIN MENU

```
**************************************************
          MANUAL ADJUSTMENT PROGRAM
**************************************************
     [A]    DATA INITIALIZE
     [B]    ELECTRIC VOLUME
     [C]    ADJUSTMENT
     [D]    VCR ADJUSTMENT
     [E]    AUTO FOCUS
     [F]    EIS
     [G]    SPOT NOISE
     [H]    EVF
     [ESC]  END
      Please select [A] - [G] or [ESC]
```

Fig. 2-20

Press **E**.

AF ADJ. MENU

```
**************************************************
          AUTO FOCUS ADJUSTMENT
**************************************************
[1]    ADJUSTMENT OF ZOOM/FOCUS TRACKING
[2]    ADJUSTMENT OF AF NOISE LEVEL
[ESC]  RETURN TO MENU
          Please select [1], [2] or [ESC]
```

Fig. 2-21

(1) Zoom Trace Adjustment

Purpose	· To set the out-of-focus correction level during zooming.
Incompleted Phenomenon	· Focus is lost during zooming.
Equipment / Jig	· Color Video Monitor · Backfocus Chart
Test Point	· Video Out (AV OUT)
Condition	· Point at the backfocus chart, 1500 ± 5 mm away from the lens surface. · Light the chart with 200-400 lux.

Caution When Adjustment

1) Measure the distance between the chart and lens surface precisely.
2) Place the chart as parallel as possible to the lens surface.
3) The backfocus chart should always be at the center of the monitor screen when the zoom is set to the wide-angle and telephoto ends.
4) The zoom trace adjustment procedure is completed within 2 minutes after it is selected.
5) Do not place any obstruction between the lens and chart during adjustment.

<PROCEDURE>

AF ADJ. MENU

```
**************************************************
          AUTO FOCUS ADJUSTMENT
**************************************************
[1]    ADJUSTMENT OF ZOOM/FOCUS TRACKING
[2]    ADJUSTMENT OF AF NOISE LEVEL
[ESC]  RETURN TO MENU
          Please select [1], [2] or [ESC]
```

Press **1** key to select ADJUSTMENT OF ZOOM/FOCUS TRACKING

```
« ADJUSTMENT OF ZOOM/FOCUS TRACKING »
          0%      50%      100%
```

```
« ADJUSTMENT OF ZOOM/FOCUS TRACKING »
          0%      50%      100%
     ADJUSTMENT COMPLETED.
        PRESS ANY KEY.
```

Press any key to return to AF ADJ. MENU.

(2) AF Noise Level Adjustment

Purpose	· To set the noise level.
Incompleted Phenomenon	· It takes time until a subject is brought into focus.
Equipment / Jig	· Correct focus is not obtained. · Color Video Monitor
Test Point	· Video Out (AV OUT)
Condition	· Set the focus to AUTO. · Point at a light box without a chart inserted at a distance of up to 10cm.

Caution When Adjustment

1) Place the light box as parallel as possible to the lens surface.
2) The AF noise level adjustment procedure will be completed within thirty seconds after it is selected.

<PROCEDURE>

AF ADJ. MENU

```
**************************************************
          AUTO FOCUS ADJUSTMENT
**************************************************
[1]    ADJUSTMENT OF ZOOM/FOCUS TRACKING
[2]    ADJUSTMENT OF AF NOISE LEVEL
[ESC]  RETURN TO MENU
          Please select [1], [2] or [ESC]
```

Press **2** key to select ADJUSTMENT OF AF NOISE LEVEL.

```
« ADJUSTMENT OF AF NOISE LEVEL »
          0%      50%      100%
```

```
« ADJUSTMENT OF AF NOISE LEVEL »
          0%      50%      100%
     ADJUSTMENT COMPLETED.
        PRESS ANY KEY.
```

Press any key to return to AF ADJ. MENU.

2.7.7 Stabilizer Adjustment Procedure
[For TYPE 635, 835, 837]

Before Starting Adjustment
- Be sure to perform this adjustment after replacing or initializing the SP circuit board and VCA circuit board (EEPROM).
- This item describes how to rewrite the stabilizer data. The average of the stabilizer data will be written.

<PRROCEDURE>

1) Start the MAP.
   - If [ESC] (escape) is pressed, the computer's display returns to MAIN MENU.
   - To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig
2) Press **F** to select EIS.
3) Prees **Y** key.
   - If **N** key is pressed, the computer's display returns to MAIN MENU.
   - If a key other than **Y** or **N** key is pressed, "PLEASE SELECT (Y/N)?" is displayed.
4) The stabilizer data is rewritten automatically.
5) Press any key to return to MAIN MENU.

MAIN MENU

```
**************************************************
          MANUAL ADJUSTMENT PROGRAM
**************************************************
     [A]    DATA INITIALIZE
     [B]    ELECTRIC VOLUME
     [C]    ADJUSTMENT
     [D]    VCR ADJUSTMENT
     [E]    AUTO FOCUS
     [F]    EIS
     [G]    SPOT NOISE
     [H]    EVF
     [ESC]  END
      Please select [A] - [H] or [ESC]
```

Press **F**.

```
« DATA WRITING »
START TO SEND DATA (Y/N)
```

Press **Y**.

```
FINISHED WRITING DATA.
PRESS ANY KEY.
```

Press any key to return to MAIN MENU.

2.7.8 SPOT NOISE ADJUSTMENT PROCEDURE

Before Starting Adjustment

- The spot noise is identified as the fine white noise that appears when the lens cap is attached after the power is turned on.
- Perform this adjustment only for products with which spot noise occurs. (However, there is no problem even if products free from spot noise are adjusted.)
- After replacing the CCD image sensor or VCA circuit board (EEPROM), check whether or not spot noise occurs and then proceed with adjustment.

<PRROCEDURE>

1) Start the MAP.
   - If [ESC] (escape) is pressed, the computer's display returns to MAIN MENU.
   - To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig
2) Cap the lens.
3) Connect the color video monitor to video out.
4) Press **G** to select SPOT NOISE.

Note
The adjustment procedure in this item is different depending on the amount of spot noise.

MAIN MENU

```
**************************************************
          MANUAL ADJUSTMENT PROGRAM
**************************************************
     [A]    DATA INITIALIZE
     [B]    ELECTRIC VOLUME
     [C]    ADJUSTMENT
     [D]    VCR ADJUSTMENT
     [E]    AUTO FOCUS
     [F]    EIS
     [G]    SPOT NOISE
     [H]    EVF
     [ESC]  END
      Please select [A] - [H] or [ESC]
```

Press **G**.

Note: The amount of spot noise is display in place marked × .

One spot noise

```
**********************************
      SPOT NOISE COMPENSATE
**********************************
      A SPOT NOISE FOUND.
        PRESS ANY KEY.
```

Much spot noise

```
**********************************
      SPOT NOISE COMPENSATE
**********************************
      × SPOT NOISE FOUND.
        PRESS ANY KEY.
```

Spot noise is not defected (When camera/recorder free from spot noise are adjusted)

```
**********************************
      SPOT NOISE COMPENSATE
**********************************
      CANNOT FIND THE SPOT NOISE.
        PRESS ANY KEY.
```

Press any key to return to MAIN MENU.

Press any key.

(A)

(A)

```
**************************************************
          SPOT NOISE COMPENSATE
**************************************************
     CAN YOU SEE THE BLINKING CURSOR ?(Y/N)
```

A cursor blinks in the section where spot noise occurs on the monitor screen.

YES → Press **Y** Key.

```
**************************************************
          SPOT NOISE COMPENSATE
**************************************************
          LOOK AT THE CURSOR POINT.
 WHILE YOU CAN SEE THE SPOT NOISE,
                      PRESS SPACE KEY.
 IF THE SPOT NOISE CLEARS,
                 THEN PRESS ENTER KEY.
```

Check whether or not spot noise disappears after auto adjustment is completed.

If it does not disappear: Press the space key.
If it disappears: Press the enter key.

There are other occurrences of spot noise. → **(A)**

Spot noise compensation is completed.

NO → Press **N** Key.

```
**************************************************
          SPOT NOISE COMPENSATE
**************************************************
 THIS SPOT NOISE IS IN THE
                 BLANKING AREA OF TV.
          PRESS ANY KEY.
```

Press any key.

```
**************************************************
          SPOT NOISE COMPENSATE
**************************************************
                COMPLETE.
            PRESS ANY KEY.
```

Press any key to Return to MAIN MENU.

2.8 CRT B/W ELECTRONIC VIEWFINDER (EVF) ADJUSTMENT [For Type 535, 635, 835]

2.8.1 Adjustment Parts Location

Note: Picture appears on the EVF only when the LCD monitor is close.

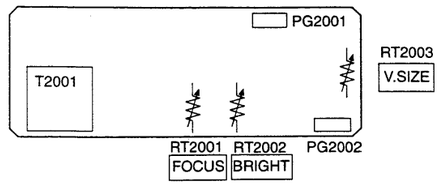


Fig. 2-51 EVF Circuit Board (Side-B)

2.8.2 Adjustment Procedure

(1) Deflection Yoke Position, EVF Centering Adjustment

Purpose	· This adjustment procedure eliminates picture tilt in the EVF display. · This adjustment centers the image observed by the camera in the EVF display.		
Equipment/Jigs	**Test Points**	**Condition**	**Adjustment point**
· EVF Dispaly		· Aim the resolution chart	· Deflection Yoke (Deflection Yoke Position) · Centering Magnets (EVF Centerig)

Adjustment procedure

Deflection Yoke Position

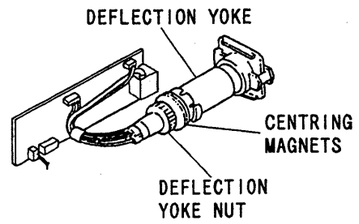
1) Loosen the deflection yoke nut.
2) Turn the deflection yoke so that the EVF picture (chart) is horizontal, matching the edges of the CRT.

Note: After adjustment is completed, tighten the deflection yoke nut.

EVF Centring

1) Remove the locking paint from the centring magnet.
2) Adjust the centring magnets until the center of the picture viewed by the camera is positioned in the center of the EVF display.

Adjustment Point



(2) EVF Vertical Size Adjustment (Fig. 2-51)

Purpose	· This adjustment determines the vertical size of the image appearing in the EVF display.		
Equipment/Jigs	**Test Points**	**Condition**	**Ajustment point**
· EVF Dispaly		· Aim the resolution chart	· RT2003 (V.SIZE) EVF

Adjustment procedure

1) RT2003: Set the top and bottom edges of the chart match the top and bottom edges of the CRT.

(3) EVF Brightness Adjustment (Fig. 2-51)

Purpose	· This adjustment sets the brightness of the picture in the EVF display.		
Equipment/Jigs	**Test Points**	**Condition**	**Ajustment point**
· EVF Dispaly		· Aim the resolution chart	· RT2002 (BRIGHT) EVF

Adjustment procedure

1) RT2002: Set to optimize the EVF picture.

(4) EVF Focus Adjustment (Fig. 2-51)

Purpose	· This control adjusts for optimum focus of the electronic viewfinder picture.		
Equipment/Jigs	**Test Points**	**Condition**	**Ajustment point**
· EVF Dispaly		· Aim the resolution chart	· RT2001 (FOCUS) EVF

Adjustment procedure

1) RT2001: Set the EVF picture is clear.

2.9 LCD COLOR ELECTRONIC VIEWFINDER (EVF) ADJUSTMENT [For Type 837]

2.9.1 Adjustment Procedure

Before Starting Adjstment
- When EEP ROM or the VCA circuit board is replaced, initialize the EEP ROM, referring to "2.7.3 Initial Setting By Model" then perform all the LCD color EVF adjustments.
- Picture appears on the EVF only when the LCD monitor is close.

<PROCEDURE>

1) Start the MAP, refering to "2.7.2 How to Start the MAP".
2) Press **H** to select EVF. (Fig. 2-101)
3) Select the number of the required adjustment.

Note
1) If [ESC] (escape) is pressed, the computer's display returns to Fig. 2-101 (MAIN MENU).
2) To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

MAIN MENU

```
**************************************************
        MANUAL ADJUSTMENT PROGRAM
**************************************************
        [A]     DATA INITIALIZE
        [B]     ELECTRIC VOLUME
        [C]     ADJUSTMENT
        [D]     VCR ADJUSTMENT
        [E]     AUTO FOCUS
        [F]     EIS
        [G]     SPOT NOISE
        [H]     EVF
        [ESC]   END
      Please select [A] - [H] or [ESC]
```

Fig. 2-101

EVF ADJ. MENU

```
**************************************************
            EVF ADJUSTMENT
**************************************************
        [1]     Ref. VOLTAGE
        [2]     PLL VCO
        [3]     BRIGHT
        [4]     CONTRAST
        [5]     R-BRT
        [6]     B-BRT
        [7]     TINT
        [8]     COLOR
        [ESC]   END
    PLEASE SELECT [1] - [8] or [ESC]
```

Fig. 2-102

(1) EVF Output Voltage Adjustment

Purpose	· This adjustment determines the reference output voltage of the EVF.
Incompleted Phenomenon	· Color flickering occurs. · The top of screen becomes pink.
Test Point	· PG2303-1 (6P Extention Cable)
Equipmet/Jig	· DVM

<PROCEDURE>

EVF ADJ. MENU

```
**************************************************
            EVF ADJUSTMENT
**************************************************
        [1]     Ref. VOLTAGE
        [2]     PLL VCO
        [3]     BRIGHT
        [4]     CONTRAST
        [5]     R-BRT
        [6]     B-BRT
        [7]     TINT
        [8]     COLOR
        [ESC]   END
    PLEASE SELECT [1] - [8] or [ESC]
```

Press **1** key to selectb the Ref. VOLTAGE.

```
**************************************************
            Ref. VOLTADE
**************************************************
        [U]         UP
        [D]         DOWN
        [RETURN]    SAVE & RETURN TO MENU
        [ESC]       RETURN TO MENU
      Please select [U], [D], [RETURN] or [ESC]
```

Press the **U** and **D** keys so the DVM reads 12.0V ± 0.1V.

After setting is completed, press the [RETURN] key.

(2) EVF Horizontal Drive Frequency Adjustment

Purpose	· This adjustment determines the frequency of the horizontal sync signal.
Incompleted Phenomenon	· Synchronization is distored.
Test Point	· PG2303-2 (6P extention Cable)
Equipmet / Jig	· DVM

<PROCEDURE>

EVF ADJ. MENU

```
**************************************************
                EVF ADJUSTMENT
**************************************************
        [1]     Ref. VOLTAGE
        [2]     PLL VCO
        [3]     BRIGHT
        [4]     CONTRAST
        [5]     R-BRT
        [6]     B-BRT
        [7]     TINT
        [8]     COLOR
        [ESC]   END
    PLEASE SELECT [1] -  [8] or [ESC]
```

Press **2** key to select the PLL VCO.

```
**************************************************
                   PLL VCO
**************************************************
      [U]       UP
      [D]       DOWN
      [RETURN]  SAVE & RETURN TO MENU
      [ESC]     RETURN TO MENU
      Please select  [U], [D], [RETURN] or [ESC]
```

Press the **U** and **D** keys so the DVM reads 2.5V ± 0.1V.

After setting is completed, press the [RETURN] key.

(3) EVF Brightness Adjustment (Fig. 2-103)

Purpose	· This adjustment sets the brightness of the picture in the EVF display.
Incompleted Phenomenon	· The picture is too dark or too bright.
Test Point	· PG2303-3 (6P extention Cable)
Equipmet / Jig	· Oscilloscope
Condition	· Aim the camera at the gray scale chart

<PROCEDURE>

EVF ADJ. MENU

```
**************************************************
                EVF ADJUSTMENT
**************************************************
        [1]     Ref. VOLTAGE
        [2]     PLL VCO
        [3]     BRIGHT
        [4]     CONTRAST
        [5]     R-BRT
        [6]     B-BRT
        [7]     TINT
        [8]     COLOR
        [ESC]   END
    PLEASE SELECT [1] -  [8] or [ESC]
```

```
**************************************************
                   BRIGHT
**************************************************
      [U]       UP
      [D]       DOWN
      [RETURN]  SAVE & RETURN TO MENU
      [ESC]     RETURN TO MENU
      Please select  [U], [D], [RETURN] or [ESC]
```

Press the **U** and **D** keys so the level ats section (A) of the waveform is 2.7V ± 0.1V. (See Fig. 2-103)

After setting is completed, press the [RETURN] key.

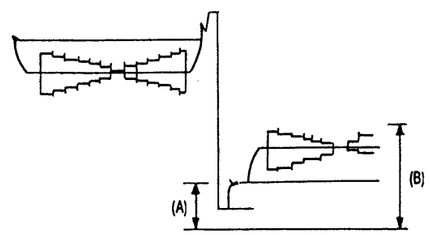


Fig. 2-103

(4) EVF Contrast Adjustment (Fig. 2-103)

Purpose	· This adjustment optimize the contrast of the EVF picture.
Incompleted Phenomenon	· Too dark. · Too bright.
Test Point	· PG2303-3 (6P Extention Cable)
Equipmet / Jig	· Oscilloscope
Condition	· Aim the camera at the gray scale chart

<PROCEDURE>

EVF ADJ. MENU

```
**************************************************
                EVF ADJUSTMENT
**************************************************
        [1]     Ref. VOLTAGE
        [2]     PLL VCO
        [3]     BRIGHT
        [4]     CONTRAST
        [5]     R-BRT
        [6]     B-BRT
        [7]     TINT
        [8]     COLOR
        [ESC]   END
    PLEASE SELECT [1] -  [8] or [ESC]
```

Press **4** key to select the CONTRAST.

```
**************************************************
                  CONTRAST
**************************************************
      [U]       UP
      [D]       DOWN
      [RETURN]  SAVE & RETURN TO MENU
      [ESC]     RETURN TO MENU
      Please select  [U], [D], [RETURN] or [ESC]
```

Press the **U** and **D** keys so the level ats section (B) of the waveform is 4.8 ± 0.1V. (See Fig. 2-103)

After setting is completed, press the [RETURN] key.

(5) EVF Sub Bright-R Adjustment (Fig. 2-104)

Purpose	· This adjustment set the brightness of the picture in the EVF display.
Incompleted Phenomenon	· When a white object is pointed out, the picture becomes blue and red.
Test Point	· PG2303-3 (6P Extention Cable) · PG2303-5 (6P Extention Cable)
Equipmet / Jig	· Oscilloscope
Condition	· Aim the camera at the gray scale chart. · Connect an oscilloscope (CH-1) to PG2303-3. · Connect an oscilloscope (CH-2) to PG2303-5.

<PROCEDURE>

EVF ADJ. MENU

```
**************************************************
                EVF ADJUSTMENT
**************************************************
        [1]     Ref. VOLTAGE
        [2]     PLL VCO
        [3]     BRIGHT
        [4]     CONTRAST
        [5]     R-BRT
        [6]     B-BRT
        [7]     TINT
        [8]     COLOR
        [ESC]   END
    PLEASE SELECT [1] -  [8] or [ESC]
```

Press **5** key to select the R-BRT.

```
**************************************************
                   R-BRT
**************************************************
      [U]       UP
      [D]       DOWN
      [RETURN]  SAVE & RETURN TO MENU
      [ESC]     RETURN TO MENU
      Please select  [U], [D], [RETURN] or [ESC]
```

Press the **U** and **D** keys so the CH-1 and CH-2 waveforms are overlapped. (See Fig. 2-104)

After setting is completed, press the [RETURN] key.

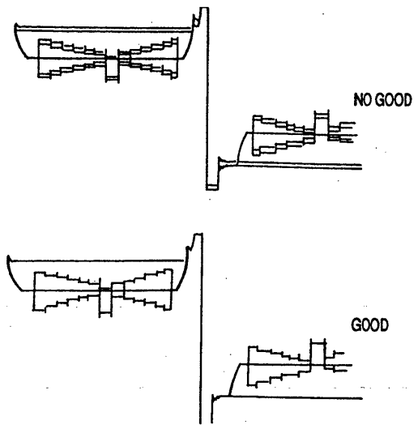


Fig. 2-104

(6) EVF Sub Bright-B Adjustment (Fig. 2-104)

Purpose	· This adjustment set the brightness of the picture in the EVF display.
Incompleted Phenomenon	· When a white object is pointed out, the picture becomes yellow and blue.
Test Point	· PG2303-3 (6P Extention Cable) · PG2303-4 (6P Extention Cable)
Equipmet/Jig	· Oscilloscope
Condition	· Aim the camera at the gray scale chart. · Connect an oscilloscope (CH-1) to PG2303-3. · Connect an oscilloscope (CH-2) to PG2303-4.

<PROCEDURE>

EVF ADJ. MENU

```
**************************************************
                EVF ADJUSTMENT
**************************************************
          [1]     Ref. VOLTAGE
          [2]     PLL VCO
          [3]     BRIGHT
          [4]     CONTRAST
          [5]     R-BRT
          [6]     B-BRT
          [7]     TINT
          [8]     COLOR
          [ESC]   END
       PLEASE SELECT [1] -  [8] or [ESC]
```

Press **6** key to select the B-BRT.

```
**************************************************
                    B-BRT
**************************************************
          [U]         UP
          [D]         DOWN
          [RETURN]    SAVE & RETURN TO MENU
          [ESC]       RETURN TO MENU
          Please select  [U], [D], [RETURN] or [ESC]
```

Press the **U** and **D** keys so the CH-1 and CH-2 waveforms are overlapped. (See Fig. 2-104)

After setting is completed, press the [RETURN] key.

(7) EVF Tint Adjustment (Fig. 2-105)

Purpose	· This adjustment optimize the tint.
Incompleted Phenomenon	· The tint drifts. · The picture becomes blank.
Test Point	· PG2303-5 (6P Extention Cable)
Equipmet/Jig	· Oscilloscope
Condition	· Aim the camera at the color bar chart.

<PROCEDURE>

EVF ADJ. MENU

```
**************************************************
                EVF ADJUSTMENT
**************************************************
          [1]     Ref. VOLTAGE
          [2]     PLL VCO
          [3]     BRIGHT
          [4]     CONTRAST
          [5]     R-BRT
          [6]     B-BRT
          [7]     TINT
          [8]     COLOR
          [ESC]   END
       PLEASE SELECT [1] -  [8] or [ESC]
```

Press **7** key to select the TINT.

```
**************************************************
                    TINT
**************************************************
          [U]         UP
          [D]         DOWN
          [RETURN]    SAVE & RETURN TO MENU
          [ESC]       RETURN TO MENU
          Please select  [U], [D], [RETURN] or [ESC]
```

Press the **U** and **D** keys so the level as section (A) [Mg and R] of the waveform are equal. (See Fig. 2-105)

After setting is completed, press the [RETURN] key.

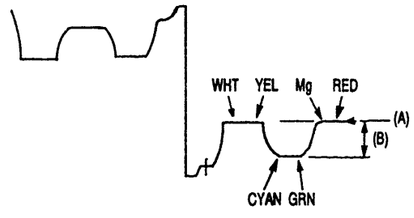


Fig. 2-105

(8) EVF Chroma Level Adjustment (Fig. 2-105)

Purpose	· This adjustment optimize the chroma level
Incompleted Phenomenon	· The colors are faint.
Test Point	· PG2303-5 (6P Extention Cable)
Equipmet/Jig	· Oscilloscope
Condition	· Aim the camera at the color bar chart.

<PROCEDURE>

EVF ADJ. MENU

```
**************************************************
                EVF ADJUSTMENT
**************************************************
          [1]     Ref. VOLTAGE
          [2]     PLL VCO
          [3]     BRIGHT
          [4]     CONTRAST
          [5]     R-BRT
          [6]     B-BRT
          [7]     TINT
          [8]     COLOR
          [ESC]   END
       PLEASE SELECT [1] -  [8] or [ESC]
```

Press **8** key to select the COLOR.

```
**************************************************
                    COLOR
**************************************************
          [U]         UP
          [D]         DOWN
          [RETURN]    SAVE & RETURN TO MENU
          [ESC]       RETURN TO MENU
          Please select  [U], [D], [RETURN] or [ESC]
```

Press the **U** and **D** keys so the level as section (B) [G - Mg or R] of the waveform is 1.5V ± 0.1V. (See Fig. 2-105)

After setting is completed, press the [RETURN] key.

2.10 COLOR LCD DISPLAY ADJUSTMENT

2.10.1 Adjustment Parts Location

Note: Picture appears on the LCD only when the LCD monitor is open. To displa y a picture while the case (LCD OPEN/CLOSE switch) is off, short pins 1 and 2 of PG905 on the VCA board using a shorting clip, etc.

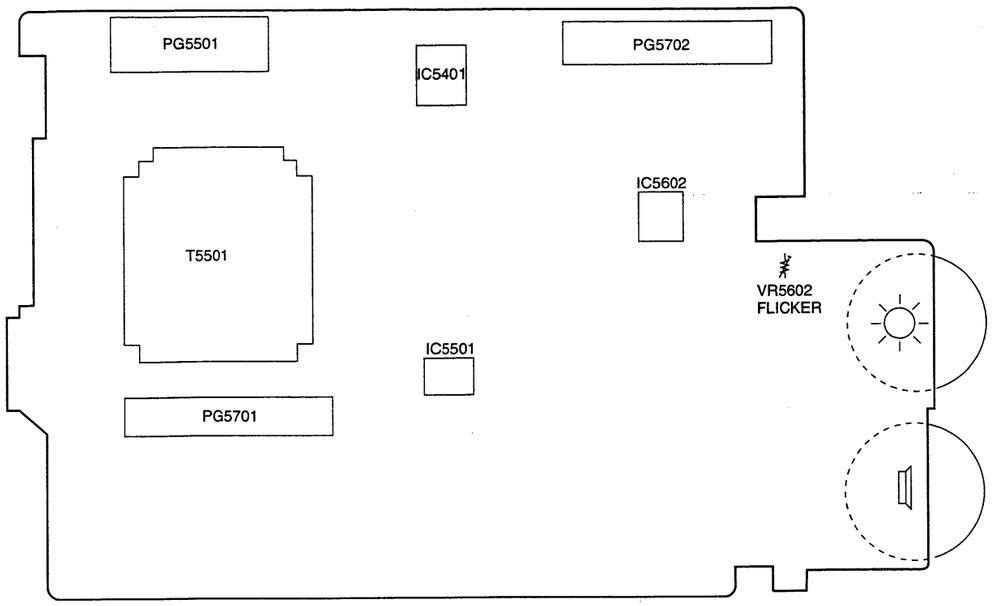


Fig. 2-201 LCD Circuit Board (Side-B)

2.10.2 Adjustment Procedure

(1) LCD Flicker Adjustment (Fig. 2-201)

Be sure to perform this adjustment after replacing the LCD board and LCD panel.

Purpose	· To minimize flickering in the LCD picture.		
Incompleted Phenomenon	· Color quality of the LCD picture declines. · Contrast of the LCD picture becomes duller.		
Equipment/Jigs	**Test Points**	**Condition**	**Adjustment point**
· Alignment Tape · LCD Display		· Playback the alignment tape (Color Bar) · Set the BRIGHT control to center click position.	RV5602 LCD (FLICKER)

Adjustment procedure

1) VR5602:
To optimize the tint of color bars. (When the variable resistor is move d one turn, there will be a range where the picture does not change. Perform a djustment outside this range.)

3. VCR SECTION ADJUSTMENT

3.1 CIRCUIT BOARD LOCATIONS

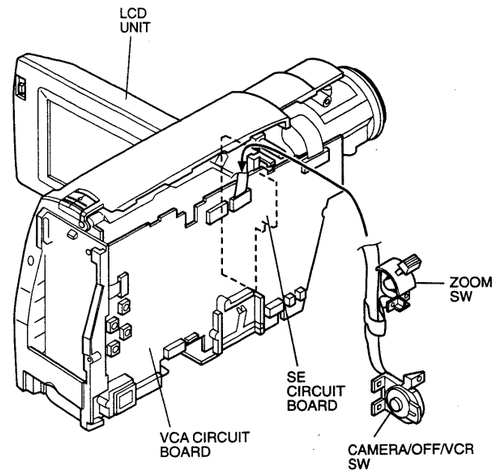


Fig. 3-1

3.2 TEST EQUIPMENT AND ALIGNMENT TAPES NECESSARY FOR ADJUSTMENT

Test Equipment

- Oscilloscope (dual trace)
- Digital Voltmeter (DVM)
- Frequency Counter
- Millivoltmeter
- Color Video Monitor
- Color Bar Generator

Alignment Tape, etc.

- Adjustment Floppy Disk
- Personal Computer
- Personal Computer 9-pin or 25-pin (RS232C) Cable
- DSP-R Jig
- DSP AV Output Jig
- Alignment Tape
- Blank Tape
- ATF-R Jig
- DC Power Supply (DC 0 - 7V/3A)
- DC Power Supply (DC 5V/1A)

3.3 ADJUSTMENT CONDITION

1) Check that the camera section has been adjusted correctly before adjusting the VCR section.
2) Connect this unit, a power supply and a color video monitor as shown in Fig. 1-1.
3) Use the 10:1 probe of the oscilloscope when other not specified.
4) When "Record mode" is specified, load a blank tape and set the 8mm video camera/recorder to the record mode by the following procedure.
   · Set the CAMERA/OFF/VCR switch to the CAMERA position.
   · Press the REC START/STOP button on the unit (or REC START/STOP button on the remote control).5)
   Before adjusting the resistors marked with asterisks (*) in the following text, remove the corresponding laser trimming resistors to replace them with the specified semi-variable resistors.
6) Before unsoldering laser trimming resistors be sure to confirm each adjustment value.
   Remove only the resistors used in the adjustment items that should be adjusted.
7) Earth of test equipment: Pre-Amp Shield (GND).

Caution

1) This camera/recorder will not perform the eject operation unless the LCD monitor is open.
   To set it to the eject state with the case dismantled, short PG905 pins 1 and 2 on the VCA board with a shorting clip, etc., and then press the EJECT button.
2) To supply video and audio signals to the normal 8 model, the AV input cable must be modified.
3) Since Hi-8 models have an AV input function, use an unmodified AV input cable to input the video and audio signals.

Procedure to modify the AV input cable (for normal 8 models)

Although normal 8 models do not have AV input function, you can modify the AV input cable so that video and audio signals can be input.
For adjustment and p erformance check, modify the AV input cable by following the procedure below, to input signals.

Note 1: Do not modify the AV input cable for purposes other than adjustment or performance check.

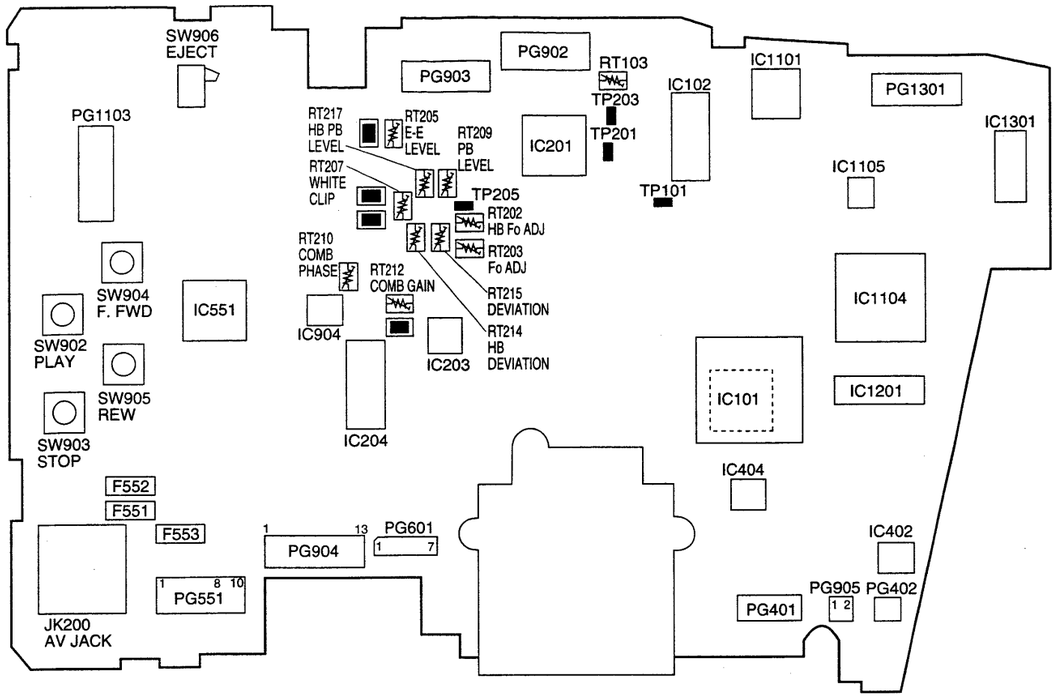
Note 2: Modify the AV input cable correctly.
If an improperly modified cabl e is connected to a camcorder, it will result in malfunctions.

Change the connection of pin 13 of the AV input cable from ground to pin 2 (DC5V).
(After checking that pin 13 and ground are not connected, connection of pin 13 to pin 2 (DC5V).)

3.4 PRESET POSITIONS OF SWITCHES AND CONTROLS DURING ADJUSTMENT

· CAMERA/OFF/VCR switch ..... "VCR" position
· TITLE ..... Not Display mode

3.5 ADJUSTMENT COMPONENTS LOCATIONS

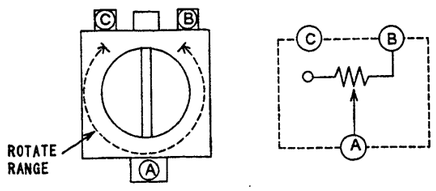


Note
- Variable resistors are laser trimming resistor.
- Test point (TP) are not actually provided on the circuit board.

Fig. 3-2 Main (VCA) Circuit Board ÅkSIDE AÅI

Table.3-1 SEMI-VARIABLE RESISTORS TABLE

ADJUST POINT	SEMI-VARIABLE RESISTOR (Ω)	NAME OF ADJUSTMENT	ADJUST POINT	SEMI-VARIABLE RESISTOR (Ω)	NAME OF ADJUSTMENT
RT0103	470	REC LUMA LEVEL	RT0210	470	COMB PHASE
RT0202	22K	HB Fo ADJ [For Hi-8]	RT0212	2.2K	COMB GAIN
RT0203	22K	Fo ADJ	RT0214	10K	HB DEVIATION[For Hi-8]
RT0205	10K	E-E LEVEL	RT0215	10K	DEVIATION
RT0207	22K	WHITE CLIP	RT0217	22K	HB PB LEVEL [For Hi-8]
RT0209	22K	PB LEVEL			

ADJUSTMENT RENGE	INSTALLATION METHOD
	Remove the laser trimming resistor andattach the specified semi-variableresistor.

3.6 CHECK AFTER REPLACING MAJOR COMPONENTS IN THE VCR SECTION

After replacing major components, perform checks, referring to the table below.
The following table shows the minimum adjustments required after major components are placed.
The table below may not apply when several components are replaced, depending on the symptom of the defect.
Caution: After replacing the parts, check each adjustment. If you find the items necessary to be adjusted, remove the corresponding laser trimming resistors and replace them with variable resistors for adjustment.

ITEM No.	NAME OF ADJUSTMENT	NAME OF MAJOR COMPONENTS					
		VCA BOARD	CYLINDER	IC0901	IC0201	IC0202	
	SYSTEM CONTROL / SERVO CIRCUITS ADJUSTMENT						
(1)	Power Shut Off Level Adjustment	◇		◇			
(2)	Head Switching Point Adjustment	◇	◇	◇			
	LUMINANCE / CHROMA CIRCUIT ADJUSTMENT						
(1)	Comb Filter Adjustment				◇	◇	
(2)	E-E Video Signal Level Adjustment				◇		
(3)	White Clip Adjustment				◇		
(4)	Carrier Frequency Adjustment				◇		
(5)	Deviation Adjustment				◇		
(6)	Record Luminance Level Adjustment				◇		
(7)	Playback Luminance Level Adjustment				◇		

3.7 SYSTEM CONTROL/SERVO CIRCUITS ADJUSTMENT

Before Starting Adjustment
- System control/servo circuits adjustment also needs a personal computer. Connect the camera/recorder, jigs, power supply, etc. in the same way as in camera section aadjustment.
- Be sure to perform this adjustment after replaceing or initializing the EEP ROM and VCA circuit board.
- When an error message appears during adjustment, refer to "4. Error Massage".
- If [ESC] (escape) is pressed, the computer's display returns Fig. 3-3 (MAIN MENU).
- To complete adjustment, pres to [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jigs.

<PROCEDURE>
1) Start the MAP.
2) Press **E** key to select VCR ADJUSTMNT. (Figs. 3-3, 3-4)
3) Select the number of the required adjustment.

MAIN MENU

```
**************************************************
          MANUAL ADJUSTMENT PROGRAM
**************************************************
        [A]    DATA INITIALIZE
        [B]    ELECTRIC VOLUME
        [C]    ADJUSTMENT
        [D]    VCR ADJUSTMENT
        [E]    AUTO FOCUS
        [F]    EIS
        [G]    SPOT NOISE
        [H]    EVF
        [ESC]  END
        Please select [A] - [H] or [ESC]
```

Fig. 3-3

Press **D**

VCR ADJ. MENU

```
**************************************************
          VCR ADJUSTMENT
**************************************************
    [1]    ADJUSTMENT OF ODC
    [2]    ADJUSTMENT OF SWITCHING POINT
    [ESC]  RETURN TO MAIN MENU
        Please select [1], [2] or [ESC]
```

Fig. 3-4

(1) Power Shut Off Level (ODC: Over Discharge) Adjustment

Purpose	· To set the minimum voltage required to opreate the camera/recorder.		
Incompleted Phenomenon	· The usable time of the battery becomes short. · The camera/recorder doesn't operate normally.		
Equipment/Jigs	**Test Points**	**Condition**	**Adjustment point**
· DVM	· PG0551-1 VCA · PG0551-8 (GND) VCA		
· DC Power Supply (0 - 7V)	· PG0551-1 VCA · PG0551-8 (GND) VCA	· Supply power (7.2V ± 0.5V) to PG0551.	
· Blamk Tape		· Load the brank tape	

<PROCEDURE>

VCR ADJ. MENU

```
**************************************************
              VCR ADJUSTMENT
**************************************************
  [1]    ADJUSTMENT OF ODC
  [2]    ADJUSTMENT OF SWITCHING POINT
  [ESC]  RETURN TO MAIN MENU
         Please select [1], [2] or [ESC]
```

Press **1** key to select the ADJUSTMENT OF ODC.

```
« SET UP OF ODC ADJUSTMENT STARTED »
PRESET POSITION OF 'CAMERA/OFF/VCR' SWITCH
'VCR' POSITION
SET POWER SOURCE AT 5.8 (+/- 0.05) V.
START ADJUSTING.
PRESS ANY KEY.
```

Set the voltage of PG0551-1 to 5.8V ± 0.05V.

Press any key, and the display changes as follows.

```
« SETUP OF ODC ADJUSTMENT COMPLETED »
« ODC ADJUSTMENT STARTED »
« ODC ADJUSTMENT COMPLETED »
PRESS ANY KEY.
```

Press any key to return to VCR ADJ. MENU

(2) Head Switching Point Adjustment

Note: Be sure to perform this adjustment after replacing the cylinder assembly and VCA circuit board.

Purpose	· To set the switching point of the video heads during playback.		
Incompleted Phenomenon	· Vertical jitter occurs. · Switching noise appears across the bottom of the monitor screen.		
Equipment/Jigs	**Test Points**	**Condition**	**Adjustment point**
· Alignment Tape		· Playback the alignment tape.	

<PROCEDURE>

VCR ADJ. MENU

```
**************************************************
              VCR ADJUSTMENT
**************************************************
  [1]    ADJUSTMENT OF ODC
  [2]    ADJUSTMENT OF SWITCHING POINT
  [ESC]  RETURN TO MAIN MENU
         Please select [1], [2] or [ESC]
```

Press **2** key to select the ADJUSTMENT OF SWITCING POINT

```
« ADJUSTMENT OF SWITCHING POINT »
PRESET POSITIONS OF 'CAMERA/OFF/VCR' SWITCH
'VCR' POSITION
PRESS ANY KEY
```

```
SET UP OF SW POINT ADJUSTMENT STARTED.
SET UP OF SW POINT ADJUSTMENT COMPLETED.
SW POINT ADJUSTMENT STARTED.
```

```
SW POINT ADJUSTMENT DATA CHEACKING.
FINISHED WRITING DATA.
ADJUSTMENT FINISHED.
PRESS ANY KEY.
```

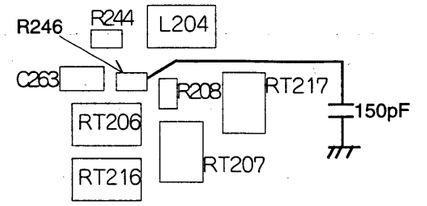
Turn the power off.

Press any key to return to VCR ADJ. MENU.

Caution

If adjustment cannot be done by the above procedure, connect a 150 pF capacitor between R246 and GND on the VCA board, and then perform the adjustment again.

After the adjustment is completed, disconnect the capacitor .



(VCA CIRCUIT BOARD -SIDE B-)

3.8 LUMINANCE/CHROMA CIRCUIT ADJUSTMENT

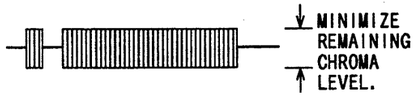
(1) Comb Filter Adjustment (Fig. 3-2)

Purpose	· To set the characteristic of the comb filter.		
Incompleted Phenomenon	· Jamming occurs at the edges. · The chroma S/N deteriorates.		
Equipment/Jigs	**Test Points**	**Condition**	**Adjustment point**
· Oscilloscope · Color Bar Generater · Blank Tape (Nor-8)	· TP0203 VCA · Video IN (AV IN)	· Input the color bar signal · STOP mode	*RT0212 VCA (COMB GAIN) *RT0210 VCA (COMB PHASE)

<PROCEDURE>
1) Load the blank tape for normal 8.
2) RT0212, RT0210:
   Set the chroma components to minimize the residual.

- Settings of oscilloscope -
· Trigger with video signal.

- Waveforms -



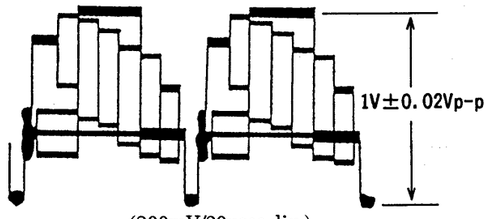
(50mV/50µsec.div.)

(2) E-E Video Siganl Level Adjustment (Fig. 3-2)

Purpose	· To set the video output level in the E-E mode.		
Incompleted Phenomenon	· The picture becomes dark or whitish in the E-E mode.		
Equipment/Jigs	**Test Points**	**Condition**	**Adjustment point**
· Oscilloscope · Color Bar Generater · Blank Tape (Nor-8)	· Video Out (AV OUT) · Video IN (AV IN)	· Input the color bar signal · STOP mode	*RT0205 VCA (E-E LEVEL)

<PROCEDURE>
1) Load the blank tape for normal 8.
2) RT0205:
   Set the video output level to 1V ± 0.02Vp-p.

- Waveforms -



(200mV/20µsec.div.)

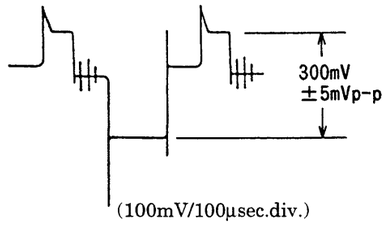
(3) White Clip Adjustmen (Fig. 3-2)

Purpose	· To set thewhite clip level		
Incompleted Phenomenon	· No color apperrs in the highly bright subject.		
Equipment/Jigs	**Test Points**	**Condition**	**Adjustment point**
· Oscilloscope · Color Bar Generater · Blank Tape (Nor-8)	· TP0205 VCA · Video IN (AV IN)	· Input the color bar signal · STOP mode	*RT0207 VCA (WHITE CLIP)

<PROCEDURE>
1) Load the blank tape for normal 8.
2) RT0207:
   Set the white clip level to 300mV ± 5mVp-p.

- Settings of oscilloscope -
· Trigger with video signal.

- Waveforms -



(100mV/100µsec.div.)

(4) Carrier Frequency Adjustment (Fig. 3-2)

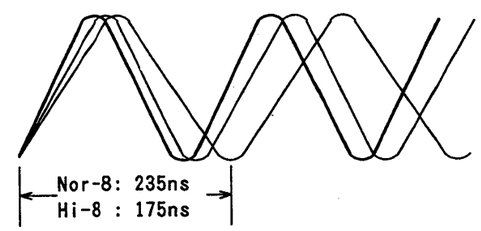
Purpose	· To set the modulation frequency at the sync tip of the FM modulator to the specified value.		
Incompleted Phenomenon	· Black and white are inverted in the picture.		
Equipment/Jigs	**Test Points**	**Condition**	**Adjustment point**
· Oscilloscope · Color Bar Generater · Blank Tape (Nor-8, Hi-8)	· TP0101 VCA · Video IN (AV IN)	· Input the white (100%) signal · STOP mode	*RT0203 VCA (Fo ADJ) *RT0202 VCA (HB Fo ADJ)

<PROCEDURE>
1) Load the blank tape for normal 8.
2) RT0203:
   Set the period of the widest pulse is 235ns ± 3ns.

[For Hi-8 Model]
3) Load the blank tape for Hi-8.
4) RT0202:
   Set the period of the widest pulse is 175ns ± 3ns.

- Settings of oscilloscope -
· Trigger with video signal.

- Waveforms -



(500mV/50nsec.div.)

(5) Deviation Adjustment (Fig. 3-2)

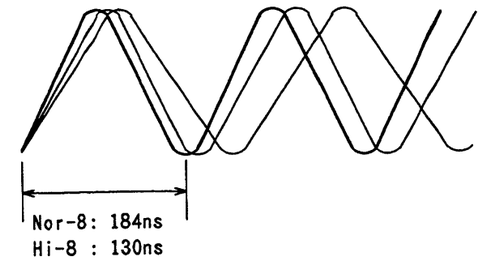
Purpose	· To set the modulation frequency at the white peak of the FM modulator to the specified value.		
Incompleted Phenomenon	· The picture becomes dark or whitish during recording and playback.		
Equipment/Jigs	**Test Points**	**Condition**	**Adjustment point**
· Oscilloscope · Color Bar Generater · Blank Tape (Nor-8, Hi-8)	· TP0101 VCA · Video IN (AV IN)	· Input the white (100%) signal · STOP mode	*RT0215 VCA (DEVIATION) *RT0214 VCA (HB DEVIATION)

<PROCEDURE>
1) Load the blank tape for normal 8.
2) RT0215:
   Set the period of the narrowest pulse is 184ns ± 2ns.

[For Hi-8 Model]
3) Load the blank tape for Hi-8.
4) RT0214:
   Set the period of the narrowest pulse is 130ns ± 2ns.

- Settings of oscilloscope -
Trigger with video signal.

- Waveforms -



(500mV/50nsec.div.)

(6) Record Luminance Adjustment (Fig. 3-2)

Purpose	· To set the luminance signal to the specified value.		
Incompleted Phenomenon	· The luminance S/Ns diteriorate. · Cross-beats appear on the monitor screen.		
Equipment/Jigs	**Test Points**	**Condition**	**Adjustment point**
· Oscilloscope · Color Bar Generater · ATF-R Jig (SW3: ON) · Blank Tape (Nor-8, Hi-8)	· CH-1: Video Out (AV OUT) · CH-2: TP0101 VCA · Video IN (AV IN) · PG0601 VCA	· Input the white (100%) signal · STOP mode	*RT0103 VCA (REC LUMA LEVEL)

<PROCEDURE>

[For Normal 8 Model]

1) Load the blank tape for normal 8.

[For Hi-8 Model]

1) Load the blank tape for Hi-8.

2) Connect the ATF-R jig to PG0601 and turn the power off.
3) Set the camera/recorder to the test mode by the following procedure.

- Procedure to set to the test mode -

1. Remove the power supply from the camera/recorder.
2. Set the CAMERA/OFF/VCR switch to CAMERA position.
3. Check that the ATF-R jig (SW1:OFF, SW3:ON) is connected and then press the playback button and hold it , then supply the power again to the camera/recorder.

4) Set the unit to the loading state.

[For Normal 8 Model]

5) RT0103:
Set the sync tip section in record luminance signal is 500mV ± 5mVp-p.

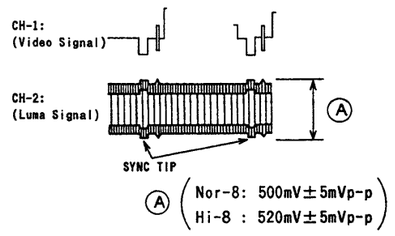
[For Hi- 8 Model]

5) RT0103:
Set the sync tip section in record luminance signal is 520mV ± 5mVp-p.

- Settings of oscilloscope -

· Trigger with video signal.

- Waveforms -



(50mV/20µsec.div.)

(7) Playback Luminance Adjustment (Fig. 3-2)

Note: Perform this adjustment after completing the record luminance level adjustment.

Purpose	· To set the luminance signal to the specified value.		
Incompleted Phenomenon	· The picture becomes dark or whitish ruring playback.		
Equipment/Jigs	**Test Points**	**Condition**	**Adjustment point**
· Oscilloscope · Blank Tape (Nor-8, Hi-8) · Color Bar Generater	· Video Out (AV OUT)	· Record color bar siganl and play it back with same VCR	*RT0209 VCA (PB LEVEL) *RT0217 VCR (HB PB LEVEL)

<PROCEDURE>

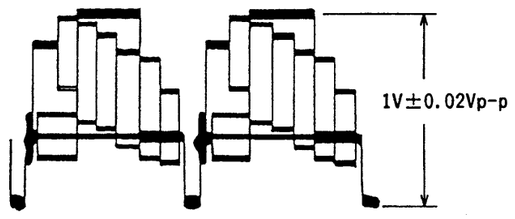
[For Normal 8 Model]

1) Playback the Nor-8 tape.
2) RT0209:
Set the playback luminance level to 1V ± 0.02Vp-p.

[For Hi-8 Model]

1) Playback the Hi-8 tape.
2) RT0217:
Set the playback luminance level to 1V ± 0.02Vp-p.

- Waveforms -



(200mV/20µsec.div.)

4. ERROR MESSAGE

4.1 CAMERA ELECTRIC VOLUME AND DIGITAL ADJUSTMENTS

ERROR MESSAGE	COUNTERMEASURE
ERROR OCCURRED. IRIS TROUBLE PRESS ANY KEY	· Check whether or not power is supplied. · Check the values of the iris drive circuit. · Defective soldering, damage to pattern, etc. in the above circuit. · Check the iris block and replace it if necessary.
ERROR OCCURRED ON da ADJUSTMENT PRESS ANY KEY	· Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in the above circuit.
D RANGE OVER. ERROR ON da ADJUSTMENT PRESS ANY KEY.	· Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in theabove circuit.
ERROR OCCURRED ON da0 and da1 ADJUSTMENT PRESS ANY KEY	· Check the values in the hall amp circuit and its peripheral circuits. · Defective soldering, damage to pattern, etc. in the above circuits.
FILE NOT FOUND !!!! PRESS ANY KEY	· The adjustment program (file) cannot be found. · Check the adjustment floppy disk and replace it if necessary.
FILE OPEN ERROR !!!! PRESS ANY KEY	· The adjustment program (file) does not start. · Check the adjustment floppy disk and replace it if necessary.
ERROR OCCURRED ON C DUTY ADJUSTMENT PRESS ANY KEY	· Check the values of the iris drive circuit. · Defective soldering, damage to pattern, etc. in the above circuit.
ERROR OCCURRED ON FDET ADJUSTMENT PRESS ANY KEY	· Supply power again and re-adjust. · Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in the above circuit.
ERROR OCCURRED. ZOOM DOES NOT WORK PRESS ANY KEY	· Supply power again and re-adjust.
TOO BRIGHT PRESS ANY KEY	· The subject is too bright. · Move the camera further away from the light box.
TOO DARK PRESS ANY KEY	· The subject is too dark. · Check the light box. · Move the camera closer to the light box.
D RANGE OVER ERROR ON HALL AMP IRIS CANNOT OPEN ANY MORE PRESS ANY KEY	· Supply power again and re-adjust. · The subject is too dark. · Check the light box. · Move the camera closer to the light box. · Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in the above circuit.
STAURATION ERROR. TOO BRIGHT PRESS ANY KEY	· The subject is too bright. · Move the camera further away from the light box.
CAN'T ADJUST WHITE BALANCE PLEASE RETRY PRESS ANY KEY	· The subject is too bright or too dark. · Check the light box. · Move the camera closer to or away from the light box. · Supply power again and re-adjust.

4.2 AUTO FOCUS ADJUSTMENT

ERROR MESSAGE	COUNTERMEASURE
TIME OUT ERROR ON FOCUS	· Check the conditions of subject. · If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.
TIME OUT ERROR ON ZOOM	· If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (2) of TROUBLESHOOTING OF AUTOFOCUS.
TIME OUT ERROR ON AF STEP	· Check the conditions of subject. · If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.

ERROR MESSAGE	COUNTERMEASURE
AF LIMIT OVER	· Check the conditions of subject. · If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (2) of TROUBLESHOOTING OF AUTOFOCUS.
AF ERROR	· If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.
TOO DARK	· Insufficient lighting. Check the subject.

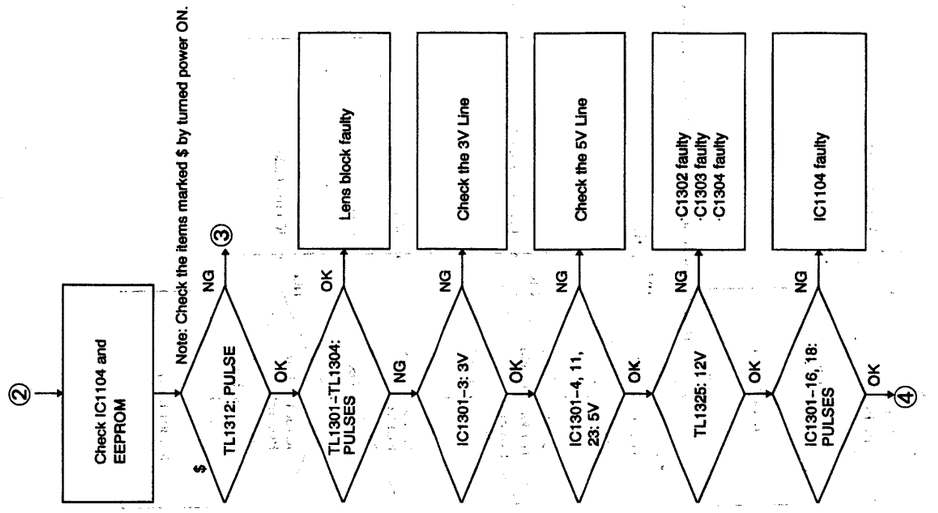
4.3 SPOT NOISE ADJUSTMENT

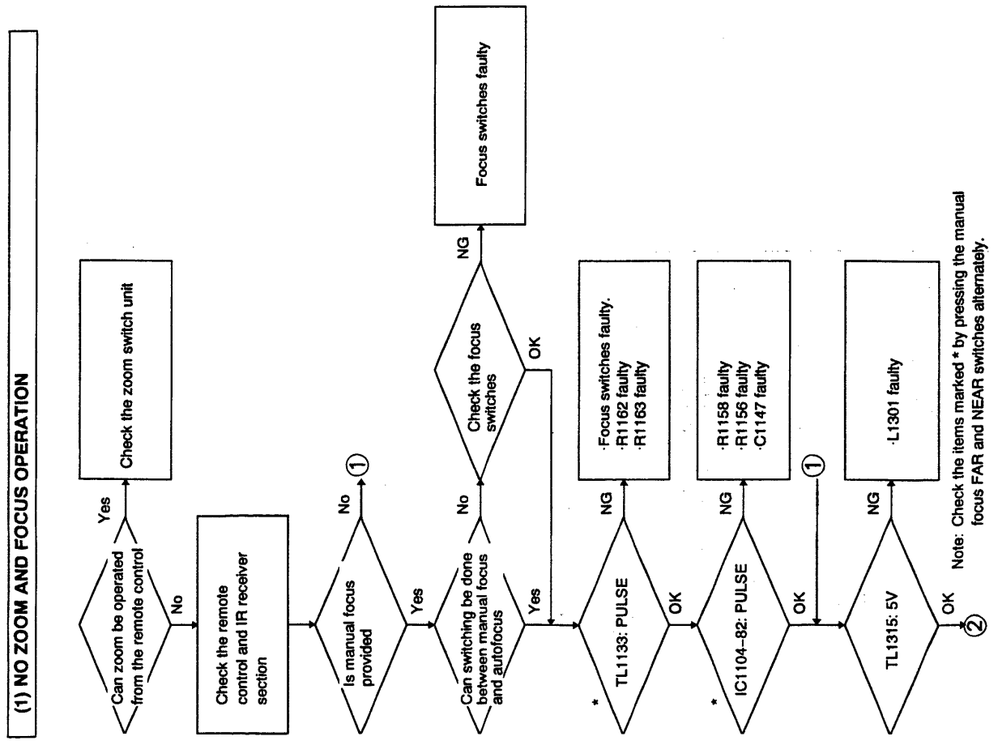
ERROR MESSAGE	COUNTERMEASURE
ERROR!! SPOT NOISE COMPENSATION IS STOPPED BY INITIAL DATA. PLEASE CHECK THE EEPROM. PRESS ANY KEY.	· Spot noise compensation is inhibited by the data in the EEPROM. · Turn the power on again. · Data in the EEPROM is defective. (Initialize it.) · Check the EEPROM,and if necessary,replace it.
ERROR!! THRESHOLD DATA ERROR. PLEASE CHECK THE EEPROM. PRESS ANY KEY.	· Turn the power on again. · Data in the EEPROM is defective. (Initialize it.) · Check the EEPROM,and if necessary,replace it.
ERROR!! THE SPOT NOISE IS TOO MANY. CAN'T COMPENSATE ANY MORE. PRESS ANY KEY.	· The amount of spot noise that can be compensated reaches the limit. · Turn the power on again. · Check the CCD image sensor,and if necessary,replace it.

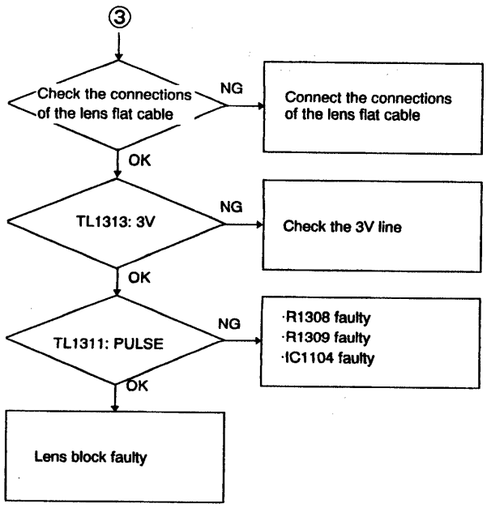
4.4 VCR ADJUSTMENT

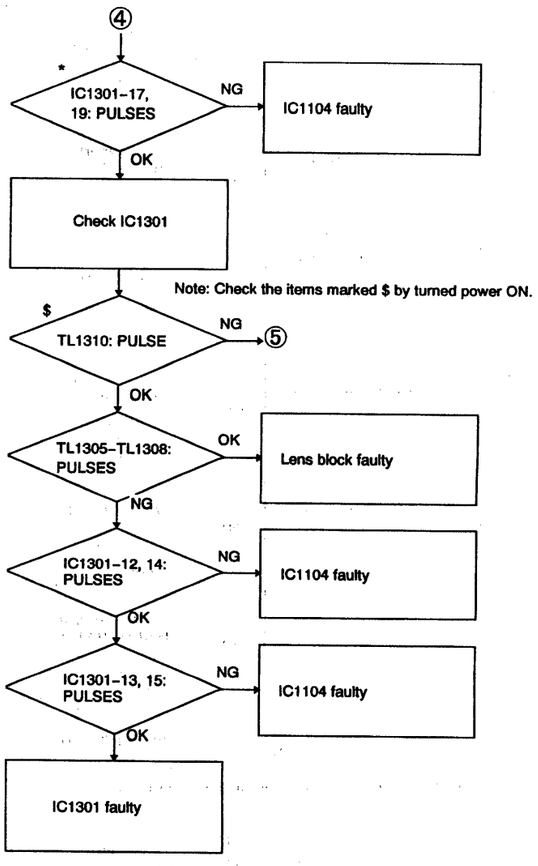
ERROR MESSAGE	COUNTERMEASURE
ERROR: SWP_TEST>DAT FILE NOT FOUND!	· The adjustment program cannot be found. · Check the adjustment floppy disk and replace it if necessary.
ERROR: INVALID MODEL PRESS ANY KEY	· A wrong model has been selected. · The adjustment program cannot be found. · Check the adjustment floppy disk and replace it if necessary.
THIS MODEL NEED NOT BE ADJUSTED PRESS ANY KEY	· A wrong model has been selected. · A product that needs analog adjustment is connected.
ADJUSTMENT INCOMPLETED PRESS ANY KEY	· The value set by adjustment defective. · Re-adjust. · Check cylinder. · Check the alignment tape. · Check whether or not the usual operation is done correctly.
RETRY ADJUSTING. PRESS ANY KEY	· Supply power again and re-adjust.
CAMERA IS NOT READY	· Check whether or not power is supplied.
ERROR OCCURRED CAN'T PLAY BACK PRESS ANY KEY	· No playback video. · Check the playback signal.
ERROR OCCURRED NO V.SYNC FOUND PRESS ANY KEY	· Vertical sync loss. · Check the vertical sync signal.
INVALID MODEL PRESS ANY KEY	· A wrong model has been selected. · The adjustment program cannot be found. · Check the adjustment floppy disk and replace it if necessary.
ERROR OCCURRED CAN'T RECORD PRESS ANY KEY	· No video recording. · Check the recording signal.

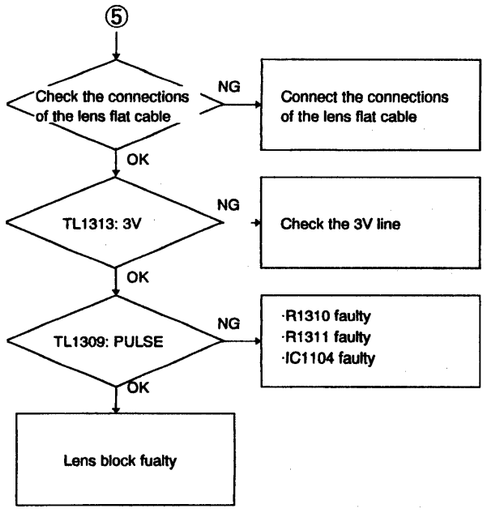
5. TROUBLESHOOTING OF AUTOFOCUS



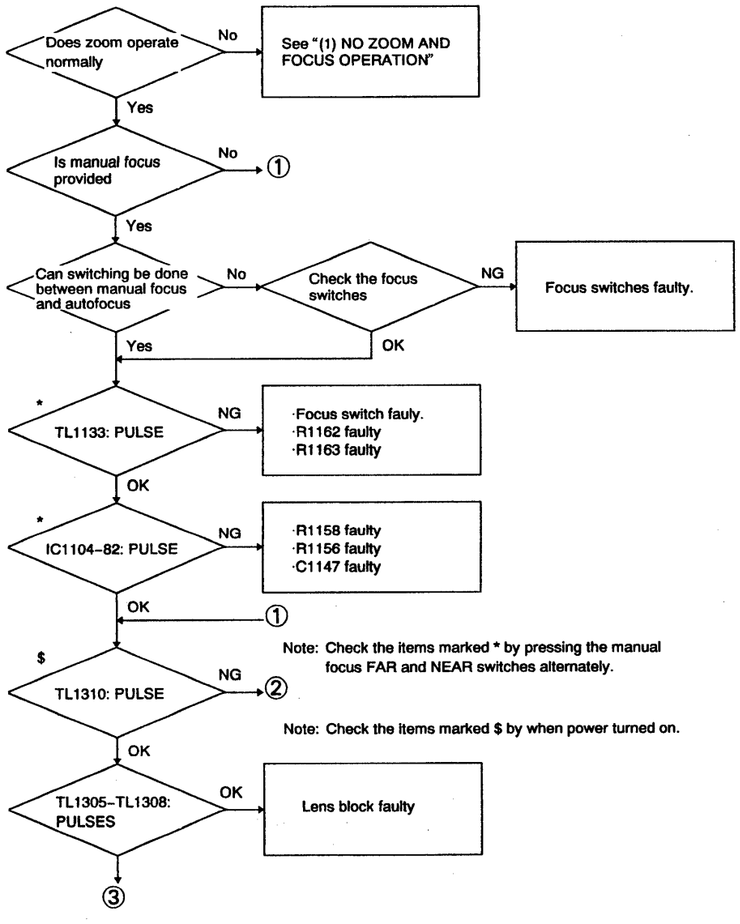



③
Check the connections of the lens flat cable
NG
Connect the connections of the lens flat cable
OK
TL1313: 3V
NG
Check the 3V line
OK
TL1311: PULSE
NG
·R1308 faulty
·R1309 faulty
·IC1104 faulty
OK
Lens block faulty


④
*
IC1301–17, 19: PULSES
NG
IC1104 faulty
OK
Check IC1301
Note: Check the items marked $ by turned power ON.
$
TL1310: PULSE
NG
⑤
OK
TL1305–TL1308: PULSES
OK
Lens block faulty
NG
IC1301–12, 14: PULSES
NG
IC1104 faulty
OK
IC1301–13, 15: PULSES
NG
IC1104 faulty
OK
IC1301 faulty

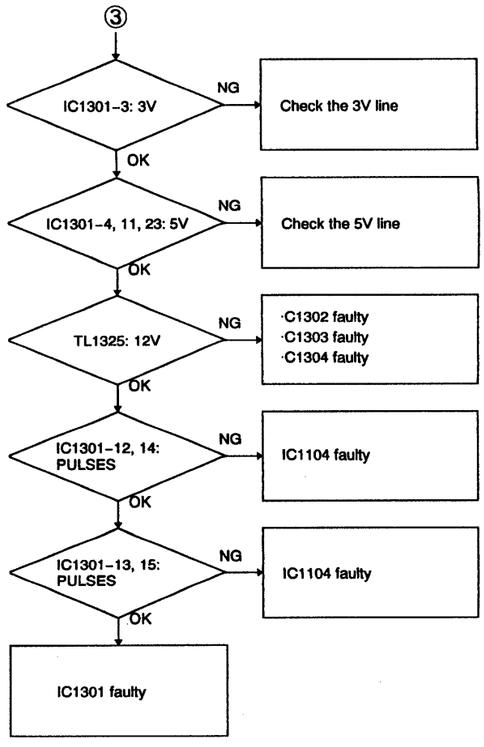

⑤
Check the connections of the lens flat cable
NG
Connect the connections of the lens flat cable
OK
TL1313: 3V
NG
Check the 3V line
OK
TL1309: PULSE
NG
·R1310 faulty
·R1311 faulty
·IC1104 faulty
OK
Lens block fualty

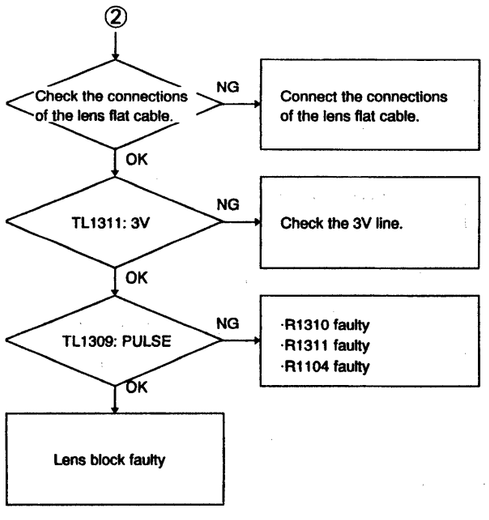
(2) NO FOCUS LENS OPERATION



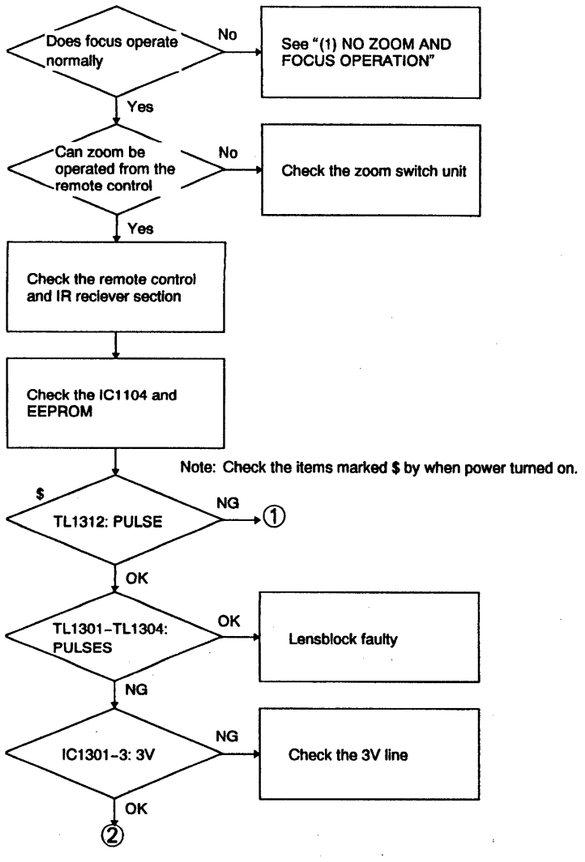
Note: Check the items marked * by pressing the manual focus FAR and NEAR switches alternately.

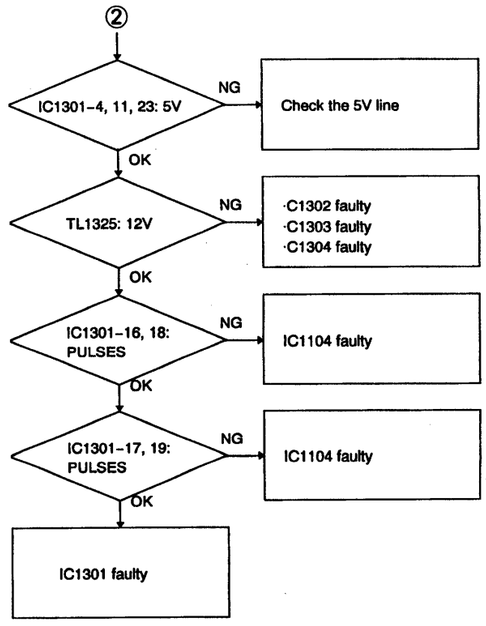
Note: Check the items marked $ by when power turned on.

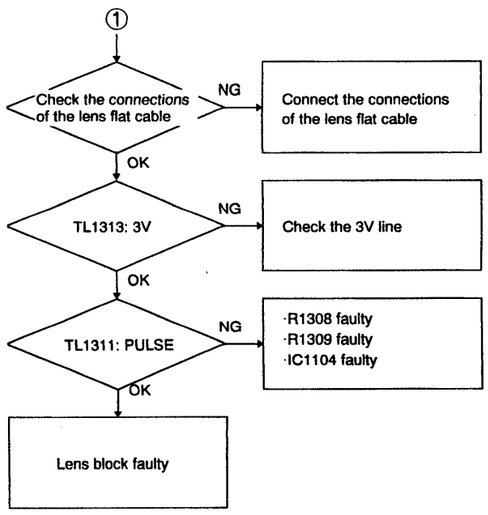




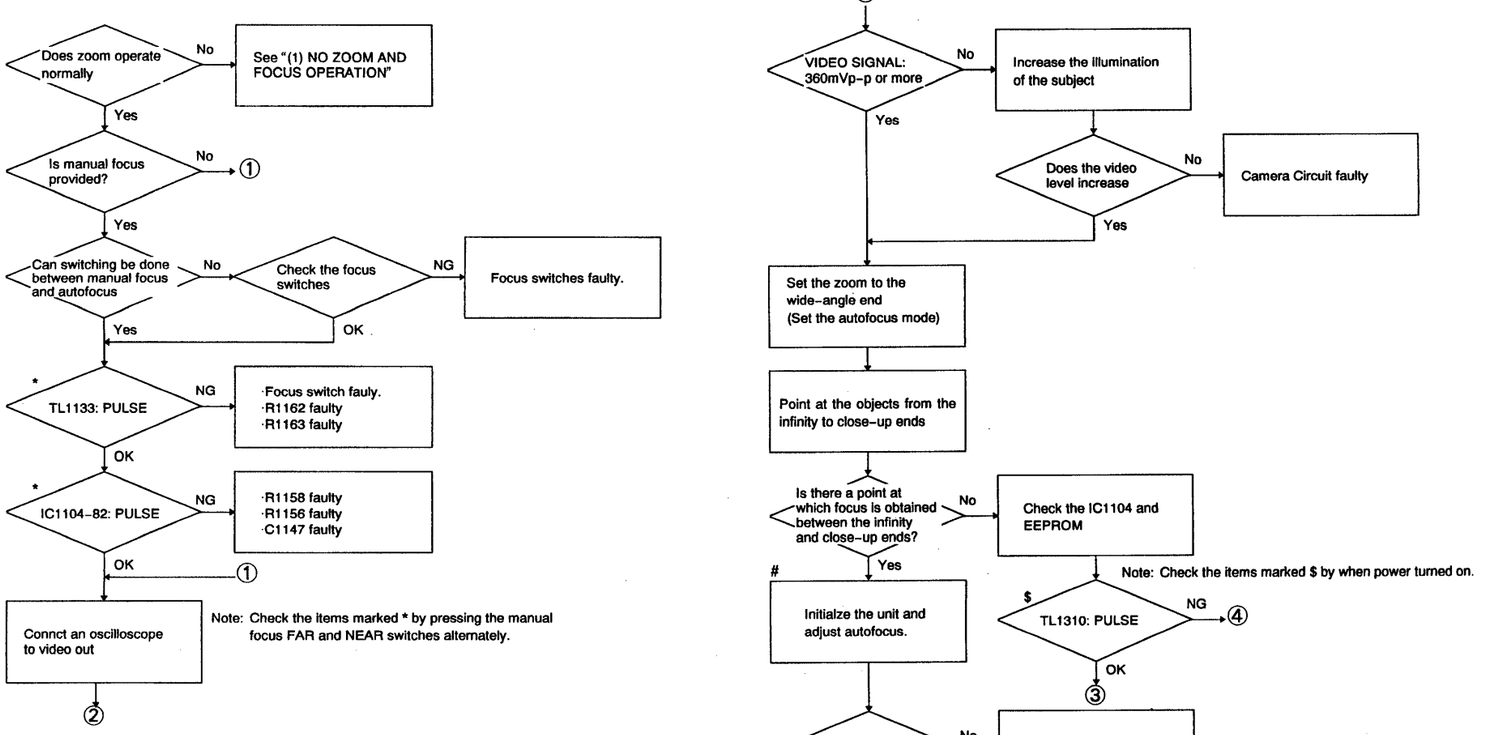
(3) NO ZOOM OPERATION

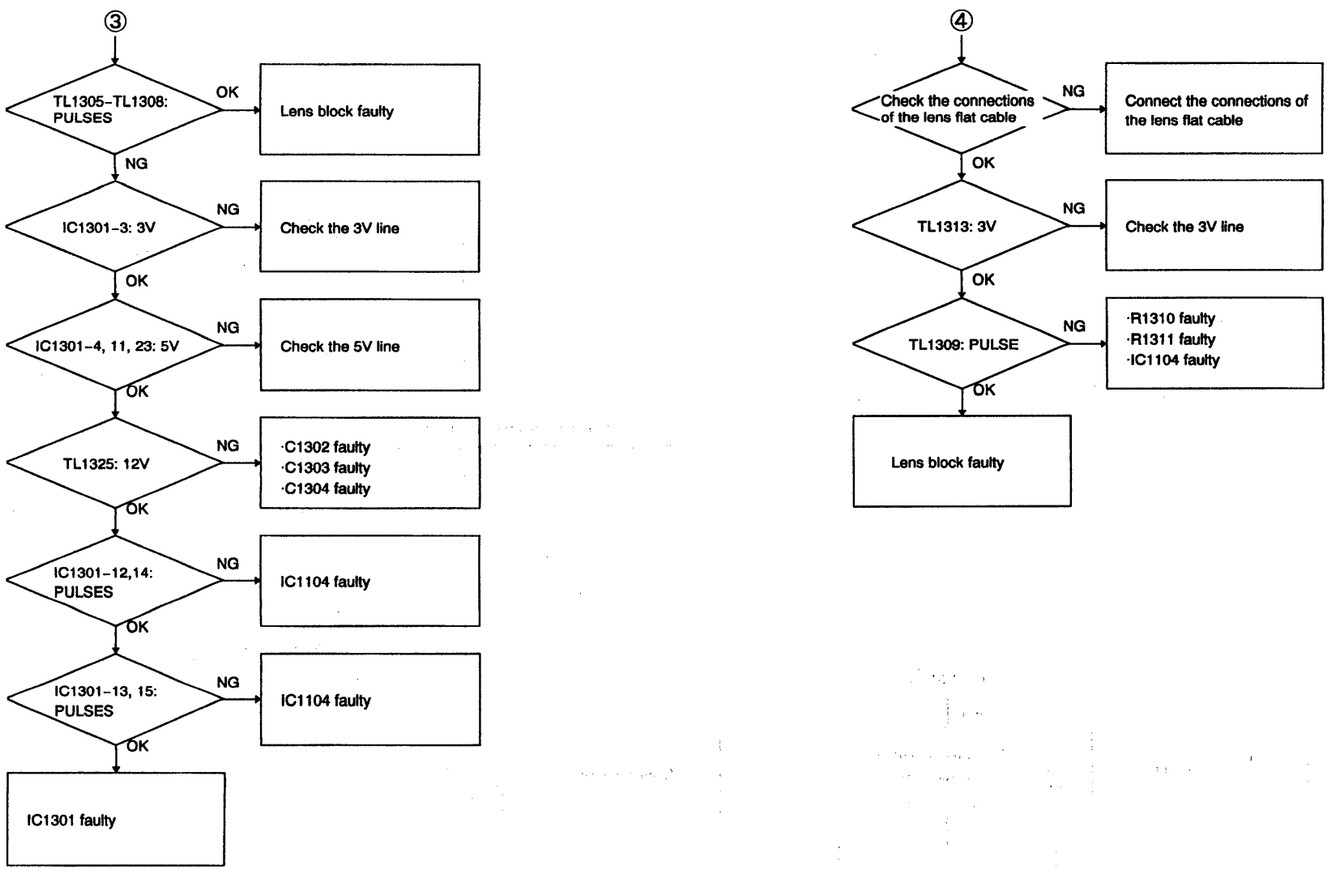




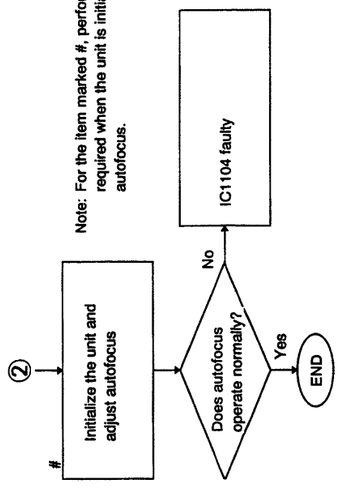


(4) NO AUTOFOCUS OPERATION

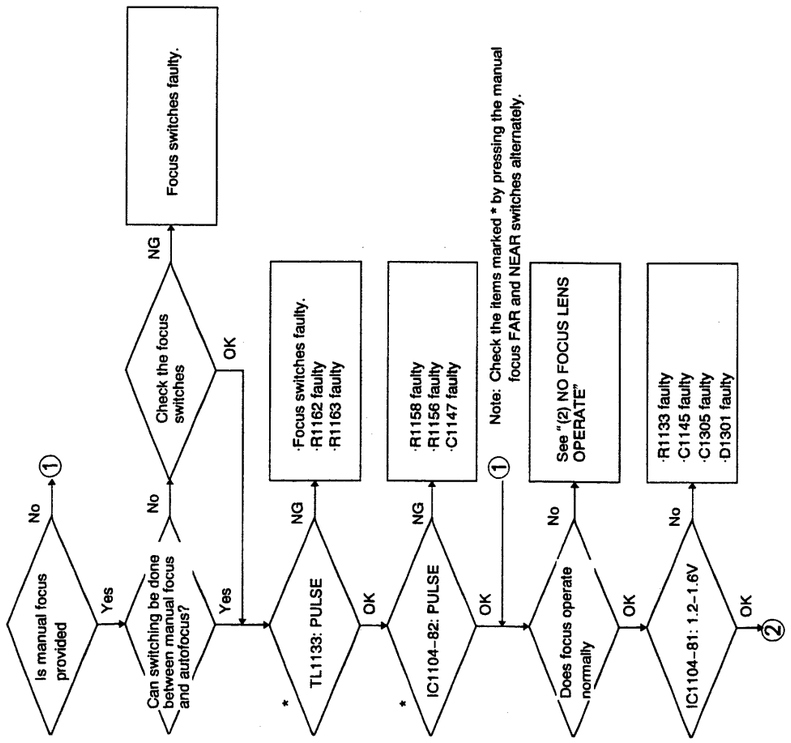




Note: For the item marked #, perform all the adjustments required when the unit is initialized, before adjusting autofocus.

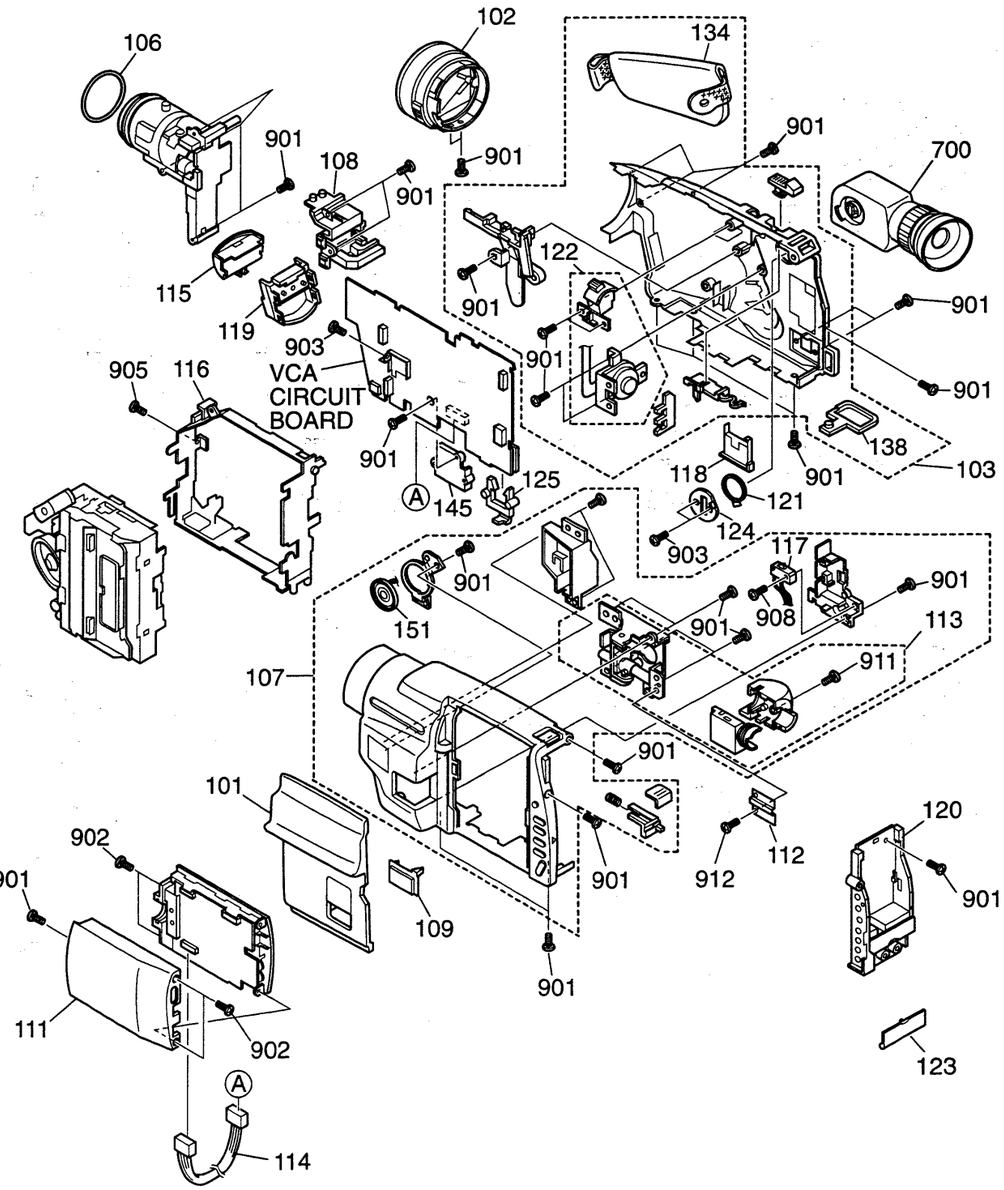


(5) SUBJECT IS GREATLY OUT-OF-FOCUS WHEN ZOOMED



CHAPTER 4 EXPLODED VIEWS

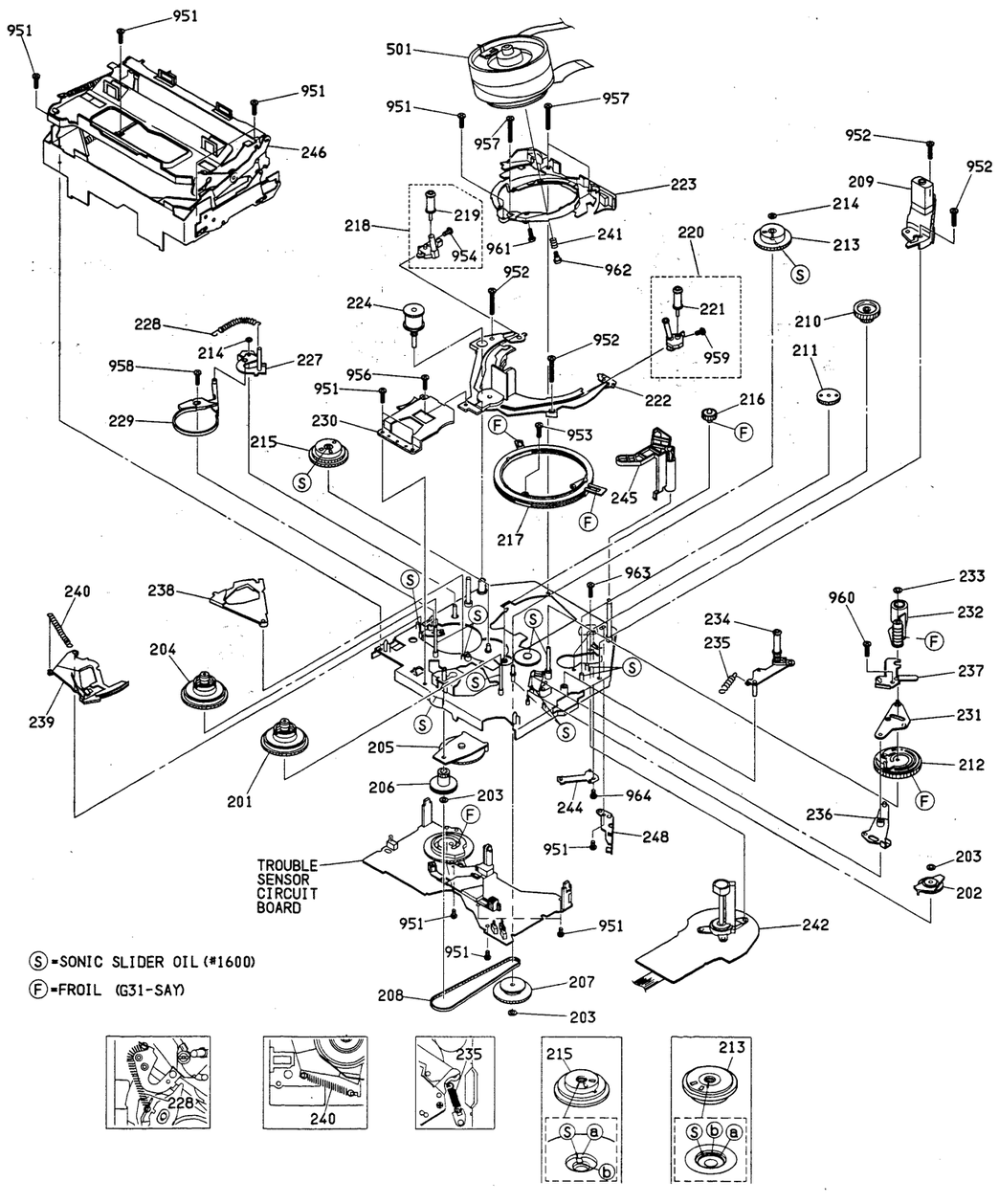
1. CABINET SECTION



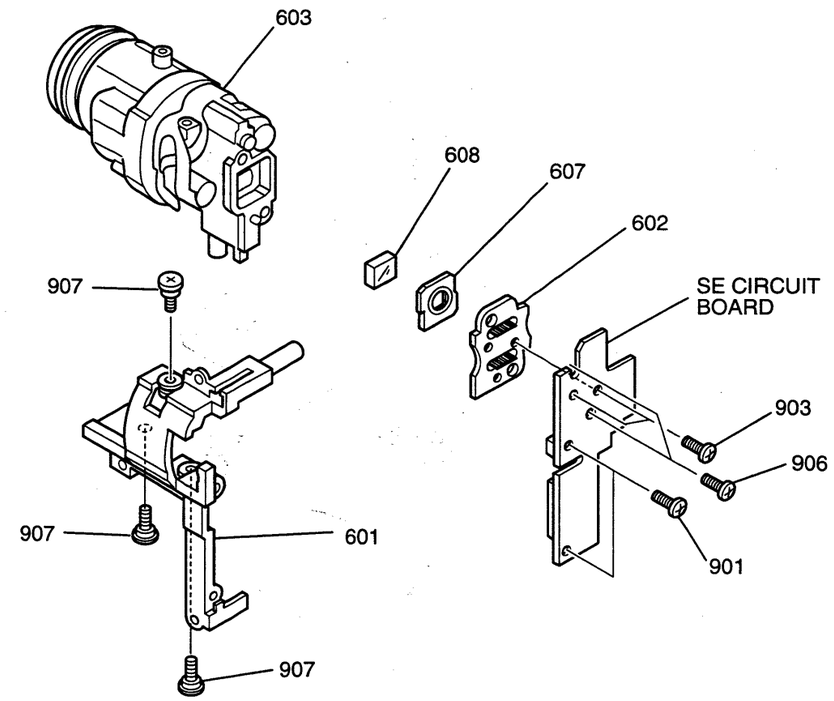
NOTE: The synthetic resin members that can be dismantled are shown by abbreviations using letters.

2. CHASSIS SECTION

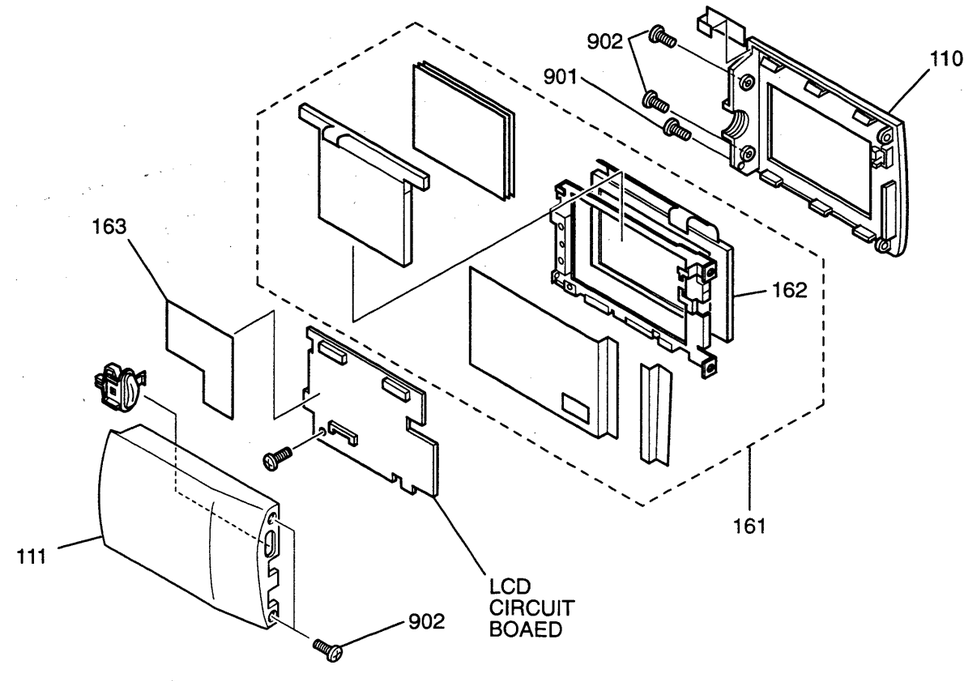
NOTE: If you change the Loading Relay Gears, please use oiler to apply Sonic Slidas oil between ⓐ to ⓑ. If oil is not applied, Loading Relay Gears will be locked.



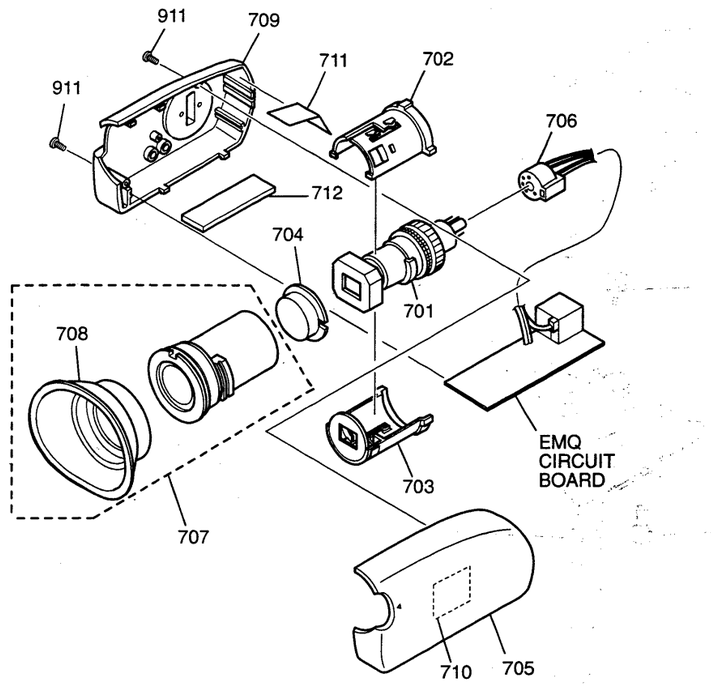
3. CAMERA BLOCK SECTION



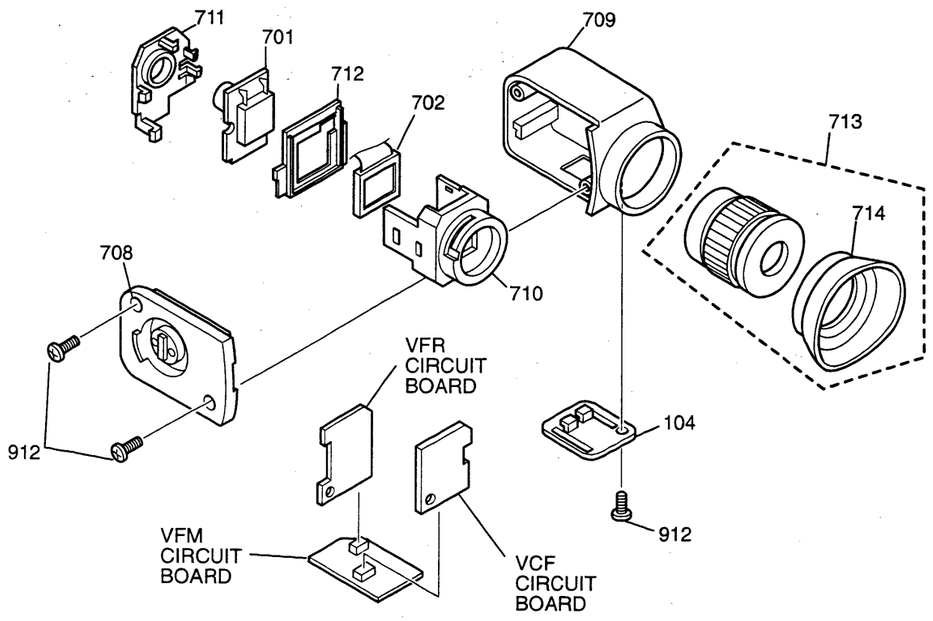
4. LCD DISPALY SECTION



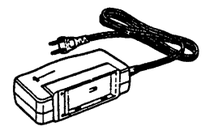
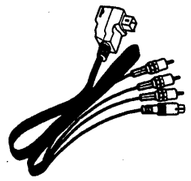
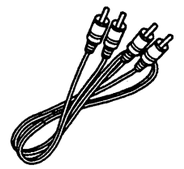
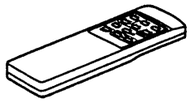
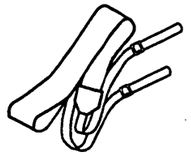
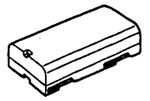
5. CRT B/W ELECTRONIC VIEW FINDER (EVF) SECTION



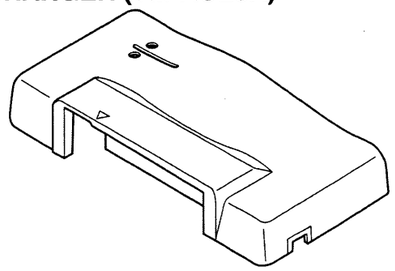
6. LCD COLOR ELECTRONIC VIEW FINDER (EVF) SECTION

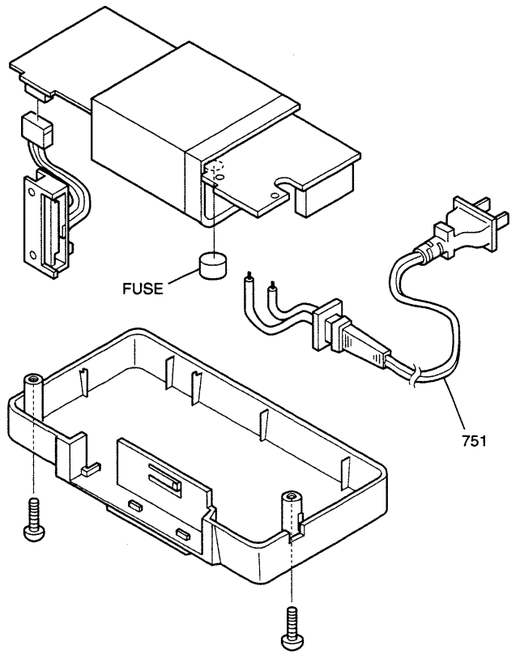


7. ACCESSORIES

802  (VM-ACE3A)	**803**	**804 [For TYPE 835]** 	**804 [For TYPE 535, 635]** 
805 [For TYPE835] (VM-RM38A)	**805 [For TYPE 535, 635]**  (VM-RME311A)	**807** 	**BATTERY** 

8. AC ADAPTER/CHARGER (VM-ACE3A)





MEMO

CHAPTER 5 REPLACEMENT PARTS LIST

1. MECHANICAL PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION	
		MECHANISM SECTION	
101	QD15201	LID, CASSETTE	[TYPE835]
101	QD15202	LID, CASSETTE	[TYPE635]
101	QD15206	LID, CASSETTE	[TYPE535]
102	QD15081	RING, LENS	[TYPE535, 635]
102	QD15082	RING, LENS	[TYPE835]
103	FH10351	SWITCH, CASE (R)	[TYPE535, 635]
103	FH10352	SWITCH, CASE (R)	[TYPE835]
106	NX11243	RING, O	
107	QD15011	CASE, SIDE (L)	[TYPE635, 835]
107	QD15012	CASE, SIDE (L)	[TYPE535]
108	NJ11331	HOLDER, IR	
109	PC13251	BUTTON, LID	
110	QD15131	CASE, LCD (B)	
111	QD15142	CASE, LCD (U)	[TYPE835]
111	QD15144	CASE, LCD (U)	[TYPE635]
111	QD15145	CASE, LCD (U)	[TYPE535]
112	MN12761	SPACER	
113	NX15051	SUPPORTING BLOCK	
114	EF10277	CONNECTOR	
115	GH10291	MICROPHONE, MONORAL	[TYPE535, 635]
115	GH10301	MICROPHONE, STEREO	[TYPE838]
116	NT10951	FRAME, MECHA	
117	FH10361	SWITCH	
118	QD15281	CASE, BATTERY	
119	QD15071	FILTER, IR	[TYPE835]
119	QD15072	FILTER, IR	[TYPE535, 635]
120	FH10331	SWITCH, REAR UNIT	
121	4899872	SPRING	
122	FH10371	SWITCH, T/W	
123	QX12791	COVER, JACK	
124	NA15041	STOPPER	
125	NJ11301	HOLDER	
134	PV10241	STRAP, HAND	
138	QX12801	COVER	
145	NX15461	HOLDER, BATTERY	
151	GK10251	SPEAKER	
161	DT10191	LIGHT, BACK	
162	DB10471	DISPLAY, LIQUID CRYSTAL	
163	MD12071	SHEET, SHIELD	
201	6404062	REEL DISK, TAKE-UP	
202	6406114	GEAR	
203	7787733	WASHER	
204	6404073	REEL DISK, SUPPLY	
205	6401644	GEAR, IDLER	
206	6406211	GEAR	
207	KF11411	GEAR, PULLY	
208	6358471	BELT	
209	KX18141	BLOCK, LOADING	
210	6376312	GEAR, DRIVE	
211	6406082	GEAR	
212	6406242	GEAR	
213	6405834	GEAR (R)	
214	7787731	WASHER	
215	6405824	GEAR (L)	
216	6406131	GEAR	
217	4588464	RING, LOADING	
218	4589354	BAS, GUIDE ROLLER(I)	
219	KX10172	ROLLER, GUIDE	
220	4589366	BASE, GUIDE ROLLER(O)	
221	KX11161	GUIDE ROLLER	
222	4587796	PLATE	
223	KX15651	BASE, CYLINDER	
224	KF11771	ROLLER, IMPEDANCE	
227	4589015	ARM, TENSION	
228	6554231	SPRING	
229	4588553	BAND, TENSION	
230	6408832	COVER, IDLER	
231	NA10601	PLATE	
232	4588294	ARM, PRESSURE ROLLER	
233	7787571	WASHER	
234	4588702	ARM	
235	6554201	SPRING	
236	KX10731	LEVER	
237	4588532	SPRING	
238	4588429	PLATE	
239	4588353	BRAKE	
240	6554221	SPRING	
241	6554214	SPRING	
242	GP10511	MOTOR, CAPSTAN	
244	5794021	BRUSH	
245	4588995	COVER	
246	KX10761	CASSETTE HOLDER ASSY	
248	4827262	BRACKET	
501	HX10251	CYLINDER ASSY (CY-53CN)	[TYPE535, 63
501	HX10253	CYLINDER ASSY (CY-53C3-F)	[TYPE835]
601	NT10961	FRAME, LENS	
602	UE12323	CCD IMAGE SENSOR ASSY	[TYPE535, 635]
602	UE12325	CCD IMAGE SENSOR ASSY	[TYPE835]
603	KQ10521	LENS, ZOOM	
607	NX11252	RUBBER	
608	DT10141	CRYSTAL	[TYPE535, 635]
608	DT10151	CRYSTAL	[TYPE835]
700	UX10561	EVF ASSY	
701	5319063	CRT	
702	4715252	CASE, CRT	
703	4715241	CASE, CRT(B)	
704	4592241	COVER	
705	QD15401	CASE, EVF (R)	
706	EF10248	CONNECTOR	
708	QX11991	CAP, EYE	
709	QD15391	CASE, EVF (L)	
710	4345001	SPACER	
711	4344291	SPACER	
712	MN10461	SHEET	
901	7775946	SCREW(2X6)	
902	7775964	SCREW(2X4)	
903	7775945	SCREW(2X5)	
904	7775963	SCREW(2X3)	
905	7773891	SCREW	
906	8650103	SCREW(2X3)	
907	MJ10221	SCREW	
908	8699108	SCREW(2X8)	
911	8619003	SCREW 1.7X5	
912	8650104	SCREW	
951	8712024	PAN HEAD SCREW-1.4MMDX3MM	
952	8700272	SCREW(1.7X5)	
953	7775921	SCREW(1.4X2)	
954	8714004	SCREW(1.4X2.5)	
956	8619065	SCREW(1.7X6)	
957	8700976	SCREW(1.7X8.0)	
958	7770791	SCREW	
959	8712904	SCREW(1.4X2.0)	
960	8619063	SCREW(1.7X3)	
961	8711105	SCREW(2X5)	
962	7785886	SCREW	
963	8700264	1.7X2 SCREW	
964	8741103	SCREW(2X3)	

2. ELECTRICAL PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION
		AC ADAPTER/CHARGER
751	4115381	CORD, POWER
		ACCESSARIES
802	TS13052	AC ADAPTOR (VM-ACE3A)
803	EV10411	CORD, PLUG
804	5856293	AV OUTPUT CORD [TYPE835]
804	EW10941	CORD[TYPE535, 635]
805	5616583	REMOTE HAND SET (VT-RM38A) [TYPE835]
805	HL10771	REMOTE HAND SET(VT-RME311A)[TTYPE535]
807	TS13691	STRAP, SHOULDER

SYMBOL-NO	P-NO	DESCRIPTION
		CAMERA & VCR SECTION
C0101	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0102	0806174	ELECTROLYTIC 100UF 6.3V
C0103	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0104	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0105	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0106	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0108	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0109	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0110	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0111	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0112	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0113	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0115	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0116	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0117	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0118	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0119	0893119	CERAMIC CHIP 33PF+-5% 50V
C0120	0893122	CERAMIC CHIP 47PF+-5% 50V
C0121	0893121	CERAMIC CHIP 39PF+-5% 50V
C0122	0806174	ELECTROLYTIC 100UF 6.3V
C0130	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0131	0806168	ELECTROLYTIC 47UF 6.3V
C0132	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0133	0893119	CERAMIC CHIP 33PF+-5% 50V
C0134	0893104	CERAMIC CHIP 2.0PF 50V[TYPE835]
C0134	0893119	CERAMIC CHIP 33PF+-5% 50V[TYPE535, 63
C0136	0893115	CERAMIC CHIP 15PF+-5% 50V
C0137	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0140	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0141	0893133	CERAMIC CHIP 330PF+-5% 50V
C0142	0893123	CERAMIC CHIP 56PF+-5% 50V
C0143	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0144	0893214	CERAMIC CHIP 2700PF+-10% 50V
C0145	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0146	0893106	CERAMIC CHIP 4.0PF+-0.25% 50V[TYPE83
C0146	0893115	CERAMIC CHIP 15PF+-5% 50V[TYPE535, 63
C0147	0893114	CERAMIC CHIP 12PF+-5% 50V
C0148	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0149	0893117	CERAMIC CHIP 22PF+-5% 50V
C0150	0893114	CERAMIC CHIP 12PF+-5% 50V
C0151	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0153	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0154	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0155	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0156	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0159	0893109	CERAMIC CHIP 7.0PF 50V
C0164	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0165	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0168	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0169	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0170	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0171	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0172	0806153	ELECTROLYTIC 10UF 16V
C0173	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0174	0806133	ELECTROLYTIC 10UF 6V
C0175	0893106	CERAMIC CHIP 4.0PF+-0.25% 50V
C0176	0893117	CERAMIC CHIP 22PF+-5% 50V
C0177	0893116	CERAMIC CHIP 18PF+-5% 50V
C0178	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0179	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0180	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0181	0893208	CERAMIC CHIP 1000PF+-10% 50V

SYMBOL-NO	P-NO	DESCRIPTION
C0182	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0183	0806153	ELECTROLYTIC 10UF 16V
C0184	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C0185	0806024	ELECTROLYTIC 3.3UF 6V
C0187	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0188	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0189	0893125	CERAMIC CHIP 82PF+-5% 50V
C0190	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0191	0893124	CHIP CERAMIC 68PF+-5% 50V
C0192	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0193	0893127	CERAMIC CHIP 120PF+-5% 50V
C0194	0893114	CERAMIC CHIP 12PF+-5% 50V
C0195	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0201	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0202	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0203	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0204	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0205	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0206	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0207	0893115	CERAMIC CHIP 15PF+-5% 50V
C0208	0893127	CERAMIC CHIP 120PF+-5% 50V
C0209	0893122	CERAMIC CHIP 47PF+-5% 50V
C0210	0893109	CERAMIC CHIP 7.0PF 50V
C0213	0893102	CERAMIC CHIP 1.0PF+-0.25% 50V
C0214	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0215	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0216	0806174	ELECTROLYTIC 100UF 6.3V
C0217	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0218	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0219	0806024	ELECTROLYTIC 3.3UF 6.3V
C0224	0893127	CERAMIC CHIP 120PF+-5% 50V
C0226	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0227	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0228	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
C0230	0893122	CERAMIC CHIP 47PF+-5% 50V
C0231	0806168	ELECTROLYTIC 47UF 6.3V
C0232	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0235	0893124	CHIP CERAMIC 68PF+-5% 50V
C0237	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0238	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0239	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0240	0893114	CERAMIC CHIP 12PF+-5% 50V
C0242	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0243	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0244	0806027	ELECTROLYTIC 4.7UF 4V
C0245	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0246	0806133	ELECTROLYTIC 10UF 6V
C0247	0806027	ELECTROLYTIC 4.7UF 4V
C0248	0893118	CERAMIC CHIP 27PF+-5% 50V
C0249	0893127	CERAMIC CHIP 120PF+-5% 50V
C0250	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0251	0806027	ELECTROLYTIC 4.7UF 4V
C0252	0806027	ELECTROLYTIC 4.7UF 4V
C0253	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0254	0806133	ELECTROLYTIC 10UF 6V
C0255	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0256	0893126	CERAMIC CHIP 100PF+-5% 50V
C0257	0806174	ELECTROLYTIC 100UF 6.3V
C0258	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
C0259	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0260	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0261	0893117	CERAMIC CHIP 22PF+-5% 50V
C0262	0893108	CERAMIC CHIP 6.0PF+-0.5% 50V
C0263	0893011	CERAMIC CHIP 0.15UF+-10% 16V
C0264	0893132	CERAMIC CHIP 270PF+-5% 50V

SYMBOL-NO	P-NO	DESCRIPTION
C0265	0893164	CERAMIC CHIP 150PF+-5% 50V
C0266	0893164	CERAMIC CHIP 150PF+-5% 50V
C0267	0893117	CERAMIC CHIP 22PF+-5% 50V
C0270	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0271	0806133	ELECTROLYTIC 10UF 6V
C0272	0893118	CERAMIC CHIP 27PF+-5% 50V
C0350	0806133	ELECTROLYTIC 10UF 6V
C0351	0806178	ELECTROLYTIC 220UF 4V
C0352	0806178	ELECTROLYTIC 220UF 4V
C0353	0806133	ELECTROLYTIC 10UF 6V
C0354	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0355	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0356	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0358	0806168	ELECTROLYTIC 47UF 6.3V
C0359	0806027	ELECTROLYTIC 4.7UF 4V
C0360	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0362	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0364	0806153	ELECTROLYTIC 10UF 16V
C0365	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0367	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0368	0893131	CERAMIC CHIP 220PF+-5% 50V
C0369	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0391	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0392	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0395	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0401L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0401R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0402L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0402R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0403L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0403R	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0404L	0893213	CERAMIC CHIP 2200PF+-10% 50V
C0404R	0893213	CERAMIC CHIP 2200PF+-10% 50V
C0405L	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0405R	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0406L	0806168	ELECTROLYTIC 47UF 6.3V
C0406R	0806168	ELECTROLYTIC 47UF 6.3V
C0407L	AA00362R	CERAMIC CHIP 2.2UF+-10% 16V
C0407R	AA00362R	CERAMIC CHIP 2.2UF+-10% 16V
C0408L	0806027	ELECTROLYTIC 4.7UF 4V
C0408R	0806027	ELECTROLYTIC 4.7UF 4V
C0409L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0409R	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0410L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0410R	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0411L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0411R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0412L	AA00362R	CERAMIC CHIP 2.2UF+-10% 16V
C0412R	AA00362R	CERAMIC CHIP 2.2UF+-10% 16V
C0413	AA00362R	CERAMIC CHIP 2.2UF+-10% 16V
C0415L	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0415R	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0416	0806027	ELECTROLYTIC 4.7UF 4V
C0417L	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0417R	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0418L	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0418R	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0419L	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0419R	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0420	AA00362R	CERAMIC CHIP 2.2UF+-10% 16V
C0421	0893186	CERAMIC CHIP 0.033UF+-10% 16V
C0422	0806133	ELECTROLYTIC 10UF 6V
C0423	0806133	ELECTROLYTIC 10UF 6V
C0424L	0893186	CERAMIC CHIP 0.033UF+-10% 16V
C0424R	0893186	CERAMIC CHIP 0.033UF+-10% 16V

SYMBOL-NO	P-NO	DESCRIPTION
C0425	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0426	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0428	0806168	ELECTROLYTIC 47UF 6.3V
C0430L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0430R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0431L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0431R	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0432	AA00362R	CERAMIC CHIP 2.2UF+-10% 16V
C0439	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0441L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0441R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0443	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0445	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0458	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0459	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0460	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0462L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0462R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0465	0806168	ELECTROLYTIC 47UF 6.3V
C0466	0806174	ELECTROLYTIC 100UF 6.3V
C0467	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0473	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0474	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0475L	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0475R	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0476L	0893195	CERAMIC CHIP 0.015UF+-10% 25V
C0476R	0893195	CERAMIC CHIP 0.015UF+-10% 25V
C0477	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0483	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0501	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0502	0893119	CERAMIC CHIP 33PF+-5% 50V
C0503	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0504	0893119	CERAMIC CHIP 33PF+-5% 50V
C0505	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0507	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C0508	0893039	CERAMIC CHIP 4700PF+-10% 50V
C0509	0893126	CERAMIC CHIP 100PF+-5% 50V
C0510	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0511	0893089	CERAMIC CHIP 0.018UF+-10% 16V
C0513	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C0514	0893039	CERAMIC CHIP 4700PF+-10% 50V
C0516	0893039	CERAMIC CHIP 4700PF+-10% 50V
C0517	0893039	CERAMIC CHIP 4700PF+-10% 50V
C0518	0893129	CERAMIC CHIP 180PF+-5% 50V
C0519	0893133	CERAMIC CHIP 330PF+-5% 50V
C0520	0893129	CERAMIC CHIP 180PF+-5% 50V
C0521	0893133	CERAMIC CHIP 330PF+-5% 50V
C0522	0893129	CERAMIC CHIP 180PF+-5% 50V
C0523	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0524	0893133	CERAMIC CHIP 330PF+-5% 50V
C0525	0893129	CERAMIC CHIP 180PF+-5% 50V
C0527	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0528	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C0529	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C0531	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0535	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C0537	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0538	0806157	ELECTROLYTIC 22UF 6.3V
C0539	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0540	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0541	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V
C0542	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0543	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V
C0544	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0545	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C0546	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C0547	0806168	ELECTROLYTIC 47UF 6.3V
C0548	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0550	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C0551	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C0552	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C0554	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C0555	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0556	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0557	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0558	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0559	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C0560	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C0601	0893205	CERAMIC CHIP 560PF+-10% 50V
C0602	0806027	ELECTROLYTIC 4.7UF 4V
C0603	0893115	CERAMIC CHIP 15PF+-5% 50V
C0604	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0605	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0606	0893204	CERAMIC CHIP 470PF+-10% 50V
C0607	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0608	0893206	CERAMIC CHIP 680PF+-10% 50V
C0609	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0610	0806156	ELECTROLYTIC 22UF 4V
C0611	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0612	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0613	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0614	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0615	0893205	CERAMIC CHIP 560PF+-10% 50V
C0616	0893115	CERAMIC CHIP 15PF+-5% 50V
C0617	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0618	0893207	CERAMIC CHIP 820PF+-10% 50V
C0619	0893177	CAPACITOR 0.068UF+-10% 16V
C0622	0893123	CERAMIC CHIP 56PF+-5% 50V
C0635	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0636	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0637	0893195	CERAMIC CHIP 0.015UF+-10% 25V
C0638	0893195	CERAMIC CHIP 0.015UF+-10% 25V
C0641	0893226	CERAMIC CHIP 0.15UF+80-20% 16V
C0642	0806153	ELECTROLYTIC 10UF 16V
C0643	0806153	ELECTROLYTIC 10UF 16V
C0645	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0647	0893011	CERAMIC CHIP 0.15UF+-10% 16V
C0648	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0649	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0650	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0651	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0652	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0671	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0672	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0673	0893213	CERAMIC CHIP 2200PF+-10% 50V
C0691	0893198	CERAMIC CHIP 0.027UF+-10% 25V
C0692	0893195	CERAMIC CHIP 0.015UF+-10% 25V
C0693	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0694	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0695	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0696	0893191	CERAMIC CHIP 6800PF+-10% 25V
C0902	0806169	ELECTROLYTIC 47UF 16V
C0904	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0905	0806174	ELECTROLYTIC 100UF 6.3V
C0906	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0907	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0908	0806168	ELECTROLYTIC 47UF 6.3V
C0909	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0910	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0911	0893107	CERAMIC CHIP 5PF+-0.25% 50V

SYMBOL-NO	P-NO	DESCRIPTION
C0912	0893107	CERAMIC CHIP 5PF+-0.25% 50V
C0913	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0914	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0915	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0916	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0917	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0918	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0919	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0923	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0924	0893119	CERAMIC CHIP 33PF+-5% 50V
C0925	0893125	CERAMIC CHIP 82PF+-5% 50V
C0928	0893117	CERAMIC CHIP 22PF+-5% 50V
C0929	0893117	CERAMIC CHIP 22PF+-5% 50V
C0930	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0932	0806174	ELECTROLYTIC 100UF 6.3V
C0939	0806168	ELECTROLYTIC 47UF 6.3V
C0942	0806174	ELECTROLYTIC 100UF 6.3V
C0943	0806174	ELECTROLYTIC 100UF 6.3V
C0944	0806174	ELECTROLYTIC 100UF 6.3V
C0999	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1002	0806169	ELECTROLYTIC 47UF 16V
C1003	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C1004	0893211	CERAMIC CHIP 1500PF+-10% 50V
C1005	0806169	ELECTROLYTIC 47UF 16V
C1006	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1007	0893113	CERAMIC CHIP 10PF+-0.5% 50V[TYPE835]
C1007	0893117 [TYPE535,635]	CERAMIC CHIP 22PF+-5% 50V
C1008	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1009	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1010	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1403	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1404	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1405	0806157	ELECTROLYTIC 22UF 6.3V
C1406	0806157	ELECTROLYTIC 22UF 6.3V
C1407	0893244	CERAMIC CHIP 0.012UF+-10% 50V
C1408	0893244	CERAMIC CHIP 0.012UF+-10% 50V
C1409	0893244	CERAMIC CHIP 0.012UF+-10% 50V
C1410	0893244	CERAMIC CHIP 0.012UF+-10% 50V
C1411	0206647	ELECTROLYTIC 10UF 10V
C1412	0206647	ELECTROLYTIC 10UF 10V
C1413	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1414	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1415	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1417	0806157	ELECTROLYTIC 22UF 6.3V
C1418	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1101	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1102	0806178	ELECTROLYTIC 220UF 4V
C1103	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1104	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1105	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1106	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1108	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1109	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1110	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1111	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1112	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1113	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1114	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C1115	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1116	0893117	CERAMIC CHIP 22PF+-5% 50V
C1119	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1120	0893124	CHIP CERAMIC 68PF+-5% 50V
C1121	0893125	CERAMIC CHIP 82PF+-5% 50V
C1122	0202319	CERAMIC CHIP 22PF+-2% 50V
C1123	0806168	ELECTROLYTIC 47UF 6.3V
C1125	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1126	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1127	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1128	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1129	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1131	0893117	CERAMIC CHIP 22PF+-5% 50V
C1132	0806168	ELECTROLYTIC 47UF 6.3V
C1134	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1135	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1136	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1139	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1141	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1142	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1143	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1144	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1145	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1146	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1147	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1148	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1149	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1150	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1151	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1152	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1155	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C1156	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1157	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1158	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1161	0806174	ELECTROLYTIC 100UF 6.3V
C1168	0806178	ELECTROLYTIC 220UF 4V
C1169	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1201	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1202	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1203	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1204	0893132	CERAMIC CHIP 270PF+-5% 50V
C1205	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1206	0893007	CERAMIC CHIP 0.082UF+-10% 16V
C1207	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C1208	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C1209	0893133	CERAMIC CHIP 330PF+-5% 50V
C1210	0893133	CERAMIC CHIP 330PF+-5% 50V
C1211	0893133	CERAMIC CHIP 330PF+-5% 50V
C1212	0893067	CERAMIC CHIP 0.1UF+80-20% 25V
C1213	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1301	0806186	ELECTROLYTIC 220UF 6.3V
C1302	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1303	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1304	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1305	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1311	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1312	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1313	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1314	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C5304	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C5305	0893173	CERAMIC CHIP 680PF+-5% 50V
C5306	0806133	ELECTROLYTIC 10UF 6V
C5308	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5309	0893246	CERAMIC CHIP 0.047UF+80-20% 50V
C5310	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C5311	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5312	0806113	ELECTROLYTIC 1UF 25V
C5313	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5314	0893111	CERAMIC CHIP 8PF+-0.5% 50V
C5315	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5316	0893232	CERAMIC CHIP 0.1UF+80-20% 25V

SYMBOL-NO	P-NO	DESCRIPTION
C5317	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5318	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5319	AD10263R	ELECTROLYTIC 10UF 10V
C5320	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5321	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5322	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5323	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5324	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5325	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5326	0893191	CERAMIC CHIP 6800PF+-10% 25V
C5327	0806024	ELECTROLYTIC 3.3UF 6.3V
C5328	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5329	0893116	CERAMIC CHIP 18PF+-5% 50V
C5336	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C5337	0806129	ELECTROLYTIC 22UF 10V
C5338	0806129	ELECTROLYTIC 22UF 10V
C5340	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5341	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5401	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5402	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5403	0806133	ELECTROLYTIC 10UF 6V
C5404	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5405	0806122	ELECTROLYTIC 68UF 6.3V
C5406	0893095	CERAMIC CHIP 0.33UF+-10% 16V
C5407	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5408	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5409	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5410	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5411	AD10275R	ELECTROLYTIC 10UF 20V
C5412	0893116	CERAMIC CHIP 18PF+-5% 50V
C5413	0893127	CERAMIC CHIP 120PF+-5% 50V
C5414	0893208	CERAMIC CHIP 1000PF+-10% 50V
C5415	0806131	CHIP CAPACITOR 2.2UF+-20% 20V
C5416	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5417	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5418	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5419	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C5420	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5421	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5422	AD10275R	ELECTROLYTIC 10UF 20V
C5501	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C5502	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5503	0806122	ELECTROLYTIC 6.8UF 6.3V
C5504	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C5505	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5506	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C5507	0806129	ELECTROLYTIC 22UF 10V
C5508	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C5509	0893116	CERAMIC CHIP 18PF+-5% 50V
C5510	0893118	CERAMIC CHIP 27PF+-5% 50V
C5511	AD10276R	ELECTROLYTIC 33UF 10V
C5512	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C5513	AF10112R	CAPACITOR 0.01UF+-5% 50V
C5514	AA10644R	CERAMIC CHIP 12PF+-5% 3KV
C5515	AF10112R	CAPACITOR 0.01UF+-5% 50V
C5516	AF10112R	CAPACITOR 0.01UF+-5% 50V
C5517	AF10112R	CAPACITOR 0.01UF+-5% 50V
C5601	0893131	CERAMIC CHIP 220PF+-5% 50V
C5602	0893168	CERAMIC CHIP 330PF+-5% 50V
C5603	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5604	0806133	ELECTROLYTIC 10UF 6V
C5605	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C5606	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5607	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5608	AD10256R	ELECTROLYTIC 3.3UF 20V

SYMBOL-NO	P-NO	DESCRIPTION
C5609	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5610	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C5611	0893208	CERAMIC CHIP 1000PF+-10% 50V
C5612	0893125	CERAMIC CHIP 82PF+-5% 50V
C5613	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C5614	0893172	CERAMIC CHIP 560PF+-5% 50V
C5615	0806113	ELECTROLYTIC 1UF 25V
C5616	0806113	ELECTROLYTIC 1UF 25V
C5617	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5619	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5620	AD10274R	ELECTROLYTIC 6.8UF 20V
C5621	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5622	0893179	CERAMIC CHIP 0.1UF+-10% 16V
R0010	0103930	CHIP RESISTOR 3900HM+-5% 1/8W
R0011	0103838	RESISTOR CHIP 3900HM+-5% 0.1W
R0101	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0102	0790007	CHIP RESISTOR 5.6 OHM+-5% 1/16W
R0103	0790007	CHIP RESISTOR 5.6 OHM+-5% 1/16W
R0104	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0105	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0106	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0107	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0108	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0109	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0110	0790076	CHIP RESISTOR 820KOHM+-5% 1/16W
R0111	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0112	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0113	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0114	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0115	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0116	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0119	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0120	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0121	0790008	CHIP RESISTOR 6.8 OHM+-5% 1/16W
R0122	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0123	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0124	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0125	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0127	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0128	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0129	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0130	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0132	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0134	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0138	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0140	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0141	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0142	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0143	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0144	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0145	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0146	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0147	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0148	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0149	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0150	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0151	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0152	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0153	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0154	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0156	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0157	AQ00205R	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0158	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0159	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0160	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R0161	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0162	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0163	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0164	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0165	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0167	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0168	0790065	CHIP RESISTOR 120KOHM+-5% 1/16W
R0170	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0171	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R0172	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0173	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0174	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0175	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0176	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0176	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0180	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R0181	0790063	CHIP RESISTOR 82KOHM+-5% 1/16W
R0182	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0183	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0184	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0185	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0186	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0187	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0188	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0190	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0191	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0192	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R0193	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0194	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0196	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0198	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0199	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0201	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0202	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0203	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0205	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0207	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0208	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0209	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0213	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0215	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0216	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0217	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0218	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0219	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0222	0790072	CHIP RESISTOR 390KOHM+-5% 1/16W
R0223	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0224	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0225	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0228	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0229	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0237	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0238	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0239	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0240	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0241	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0243	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0244	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0245	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0246	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0247	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0248	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0250	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0253	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0254	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R0255	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0257	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0258	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0259	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0260	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0261	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0265	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0267	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W[TYPE835]
R0267	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W [TYPE535,635]
R0268	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0270	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0271	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0272	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0273	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0274	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0278	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0280	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0281	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0292	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0293	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R0294	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0295	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0296	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0298	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0299	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0336	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0341	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0342	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0343	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0344	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0346	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0347	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0350	0104093	CHIP RESSISTOR 75 OHM+-5% 1/16W
R0351	0104093	CHIP RESSISTOR 75 OHM+-5% 1/16W
R0354	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0355	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0356	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0357	AQ00203R	CHIP RESISTOR 2.2KOHM+-1% 1/16W
R0359	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0364	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0366	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0371	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R0373	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0374	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0382	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0383	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0384	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0390	0104093	CHIP RESSISTOR 75 OHM+-5% 1/16W
R0391	0104093	CHIP RESSISTOR 75 OHM+-5% 1/16W
R0392	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R0397	0104093	CHIP RESSISTOR 75 OHM+-5% 1/16W
R0399	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0401L	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0401R	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0402L	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0402R	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0403L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0403R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0405	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0408	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0410	0104121	CHIP RESISTOR 27KOHM+-1% 1/10W
R0412	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0413L	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0413R	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R0415	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0417L	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0417R	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0418L	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W [TYPE535,635]
R0418L	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W[TYPE835]
R0418R	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0419L	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W[TYPE835]
R0419L	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W [TYPE535,635]
R0419R	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W[TYPE835]
R0420L	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0420R	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0421L	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0421R	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0428	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0429L	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0429R	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0435	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0436L	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0436R	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0445	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0447	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0464	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0466	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R0467	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R0468	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0469	0790073	CHIP RESISTOR 470KOHM+-5% 1/16W
R0470	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0473	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0474	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0477	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0479	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R0480	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0481	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0482	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0484	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0485	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0486	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0487	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0488L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0488R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0489L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0489R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0490L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0490R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0491L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0491R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0492L	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0492R	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0493L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0493R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0494L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0494R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0501	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0502	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0504	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0505	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0506	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0507	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0508	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0510	0104269	CHIP RESISTOR 43KOHM+-1% 1/10W
R0511	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0512	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0513	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0514	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0516	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0517	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0518	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0519	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0522	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0525	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0529	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0530	0104301	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0531	0104292	CHIP RESISTOR 1.0KOHM+-0.5% 1/16W
R0532	0104301	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0533	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0534	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0539	0104297	CHIP RESISTOR 10KOHM+-0.5% 16V
R0540	0104292	CHIP RESISTOR 1.0KOHM+-0.5% 1/16W
R0541	0104301	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0545	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0546	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0549	0790076	CHIP RESISTOR 820KOHM+-5% 1/16W
R0550	AQ10274R	CHIP RESISTOR 46.4KOHM+-0.5% 1/16W
R0551	AQ10273R	CHIP RESISTOR 680 OHM+-0.5% 1/16W
R0552	0104301	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0555	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R0556	0104303	CHIP RESISTOR 12KOHM+-0.5% 1/16W
R0558	0104301	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0561	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0562	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0566	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0567	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0583	0790023	CHIP RESISTOR 82 OHM+-5% 1/16W
R0601	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0602	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0603	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0606	AQ00223R	CHIP RESISTOR 12KOHM+-1% 1/16W
R0607	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0608	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0609	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0610	AQ00223R	CHIP RESISTOR 12KOHM+-1% 1/16W
R0611	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0612	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0613	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0614	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0616	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0619	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0620	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0621	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0622	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0623	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0624	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0628	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0640	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0641	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0642	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0643	0105815	CHIP RESISTOR 0.47 OHM+-10% 1/4W
R0644	0105815	CHIP RESISTOR 0.47 OHM+-10% 1/4W
R0662	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0663	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0671	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0672	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0681	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0682	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0691	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0692	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0693	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0694	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R0695	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0696	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0701	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0702	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0703	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0704	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0705	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0706	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0707	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0708	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0714	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0718	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0721	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0722	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0723	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0724	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0725	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0728	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0733	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0739	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0740	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0741	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0743	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0744	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0746	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0751	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0752	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0753	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0754	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0755	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0901	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0903	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R0904	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0905	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0906	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0907	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0908	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0909	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R0912	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0913	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0914	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0915	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0916	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0917	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0918	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0919	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0920	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0921	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0922	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0923	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0924	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0925	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0926	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0927	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0928	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0929	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0930	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0931	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0932	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0933	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0934	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0935	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0936	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0937	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0938	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0941	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0942	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0943	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0944	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0945	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0946	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0948	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0949	AQ00221R	CHIP RESISTOR 10KOHM+-1% 1/16W
R0950	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0951	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0952	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0953	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0954	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0955	AQ0021R	CHIP RESISTOR 10KOHM+-1% 1/16W
R0957	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0958	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0961	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0962	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0963	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0964	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0966	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0969	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0970	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0971	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R0972	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0974	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0975	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0976	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0977	0790017	CHIP RESISTOR 33 OHM+-5% 1/16W
R0978	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0979	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0980	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0981	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0982	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0983	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0984	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0985	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0986	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0987	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0991	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0992	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0994	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0995	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0996	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0997	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0998	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0999	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1001	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R1002	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1003	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1006	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1009	0103823	CHIP RESISTOR 220HM+-5% 0.1W
R1101	AQ00231R	CHIP RESISTOR 24KOHM+-1% 1/16W
R1112	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1113	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R1114	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R1115	0790012	CHIP RESISTOR 12 OHM+-5% 1/16
R1116	0790012	CHIP RESISTOR 12 OHM+-5% 1/16
R1117	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1118	BM00137R	FILTER 750
R1119	BM00137R	FILTER 750
R1120	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1121	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1122	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1123	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R1124	AQ00214R	CHIP RESISTOR 5.6KOHM+-1% 1/16W
R1125	AQ00235R	CHIP RESISTOR 36KOHM+-1% 1/16W
R1126	AQ00209R	CHIP RESISTOR 3.9KOHM+-1% 1/16W
R1127	AQ00235R	CHIP RESISTOR 36KOHM+-1% 0.063W
R1128	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R1129	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R1130	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1131	0104545	CHIP RESISTOR 1.24KOHM+-1% 1/16W
R1132	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R1133	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1136	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R1137	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R1142	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R1143	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1145	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1146	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1147	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1148	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1149	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1150	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1155	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1156	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1157	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1158	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1159	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R1160	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1161	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R1162	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1163	0790063	CHIP RESISTOR 82KOHM+-5% 1/16W
R1169	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1170	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1175	AQ00194R	CHIP RESISTOR 1KOHM+-1% 1/16W
R1201	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R1202	0790069	CHIP RESISTOR 270KOHM+-5% 1/16W
R1203	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1204	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1205	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1206	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1207	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1208	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1209	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1210	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1211	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1212	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1213	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1214	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1215	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1216	AQ00231R	CHIP RESISTOR 24KOHM+-1% 1/16W
R1218	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1220	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R1221	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1222	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1223	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R1225	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R1226	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R1303	AQ00223R	CHIP RESISTOR 12KOHM+-1% 1/16W
R1308	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1309	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1310	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1311	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1312	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R1313	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R1314	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1315	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R1403	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R1404	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R1405	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R1406	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R1407	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1408	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1409	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1410	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1411	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R1412	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R1413	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1414	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1416	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5301	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R5302	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R5303	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R5304	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R5307	AQ00232R	CHIP RESISTOR 27KOHM+-1% 1/16W
R5308	AQ00236R	CHIP RESISTOR 39KOHM+-1% 1/16W
R5309	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R5310	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R5311	AQ00232R	CHIP RESISTOR 27KOHM+-1% 1/16W
R5312	AQ00236R	CHIP RESISTOR 39KOHM+-1% 1/16W
R5313	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R5314	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R5315	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R5316	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R5317	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R5318	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R5319	AQ00227R	CHIP RESISTOR 18KOHM+-1% 1/10W
R5320	AQ00234R	CHIP RESISTOR 33KOHM+-1% 1/16W
R5323	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R5324	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R5325	AQ00232R	CHIP RESISTOR 27KOHM+-1% 1/16W
R5326	AQ00238R	CHIP RESISTOR 47KOHM+-1% 1/16W
R5327	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R5328	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R5329	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R5330	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R5331	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R5332	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R5333	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R5334	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R5336	0105203	CHIP RESISTOR 18KOHM+-0.5% 1/16W
R5338	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R5339	0790063	CHIP RESISTOR 82KOHM+-5% 1/16W
R5340	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R5341	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R5342	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R5351	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R5356	0790072	CHIP RESISTOR 390KOHM+-5% 1/16W
R5357	AQ00252R	CHIP RESISTOR 150KOHM+-5% 1/16W
R5401	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R5402	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R5404	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R5405	AQ10634R	CHIP RESISTOR 120KOHM+-0.5% 1/16W
R5406	0105197	CHIP RESISTOR 22KOHM+-0.5% 1/16W
R5407	0104727	CHIP RESISTOR 15KOHM+-1% 1/16W
R5408	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R5409	AQ10632R	CHIP RESISTOR 33KOHM+-0.5% 1/16W
R5410	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R5411	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R5412	0105213	CHIP RESISTOR 5.6KOHM+-0.5% 1/16W
R5413	0105215	CHIP RESISTOR 47KOHM+-5% 1/16W
R5414	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R5415	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W

SYMBOL-NO	P-NO	DESCRIPTION
R5416	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R5417	0104251	CHIP RESISTOR 2.2 OHM+-5% 1/10W
R5420	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5501	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5502	AQ10634R	CHIP RESISTOR 120KOHM+-0.5% 1/16W
R5503	AQ10631R	CHIP RESISTOR 27KOHM+-0.5% 1/16W
R5504	0105196	CHIP RESISTOR 6.8KOHM+-0.5% 1/16W
R5505	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R5506	0105193	CHIP RESISTOR 1.8KOHM+-0.5% 1/16W
R5507	0105209	CHIP RESISTOR 3.3KOHM+-0.5% 1/16W
R5508	0105196	CHIP RESISTOR 6.8KOHM+-0.5% 1/16W
R5509	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R5510	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R5511	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R5512	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5513	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R5514	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R5515	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R5518	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5519	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R5521	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R5522	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R5523	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R5524	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R5525	AQ00205R	METAL FILM RESISTOR 2.7KOHM+-1% 1/10
R5526	AQ00205R	METAL FILM RESISTOR 2.7KOHM+-1% 1/10
R5527	AQ00203R	CHIP RESISTOR 2.2KOHM+-1% 1/16W
R5528	AQ00203R	CHIP RESISTOR 2.2KOHM+-1% 1/16W
R5529	AQ00181R	CHIP RESISTOR 330 OHM+-1% 1/16W
R5601	0790063	CHIP RESISTOR 82KOHM+-5% 1/16W
R5602	0790063	CHIP RESISTOR 82KOHM+-5% 1/16W
R5603	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R5604	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5605	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5606	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R5607	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R5609	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5610	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5611	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R5612	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R5613	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5614	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R5615	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R5616	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R5617	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R5618	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5619	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R5620	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R5621	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R5622	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R5623	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5624	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R5625	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R5626	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R5627	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R5628	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R5629	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R5630	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R5631	AQ10635R	CHIP RESISTOR 270KOHM+-5% 1/16W
R5632	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R5633	AQ10633R	CHIP RESISTOR 56KOHM+-0.5% 1/16W
R5634	0105215	CHIP RESISTOR 47KOHM+-5% 1/16W
R5635	0104721	CHIP RESISTOR 100KOHM+-0.5% 1/16W
R5636	0790002	CHIP RESISTOR 2.2 OHM+-5% 1/16W
R5637	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R5638	AQ10632R	CHIP RESISTOR 33KOHM+-0.5% 1/16W
R5639	0105197	CHIP RESISTOR 22KOHM+-0.5% 1/16W
R5642	AQ10632R	CHIP RESISTOR 33KOHM+-0.5% 1/16W
R5643	0105197	CHIP RESISTOR 22KOHM+-0.5% 1/16W
R5644	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R5645	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R5646	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5647	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R5648	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R5650	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5708	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R5710	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R5711	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R5712	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R5713	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
RT0103	5040201	VARIABLE RESISTOR 470 OHM
RT0202	0104167	CHIP RESISTOR 5.6KOHM+-10% 1/8W
RT0203	5040205	VARIABLE RESISTOR 4.7KOHM
RT0204	0104167	CHIP RESISTOR 5.6KOHM+-10% 1/8W
RT0205	5040204	VARIABLE RESISTOR 10KOHM
RT0206	0104159	CHIP RESISTER 1.5KOHM+-10% 1/8W
RT0207	5040205	VARIABLE RESISTOR 4.7KOHM
RT0209	5040205	VARIABLE RESISTOR 4.7KOHM
RT0210	5040201	VARIABLE RESISTOR 470 OHM
RT0211	0104159	CHIP RESISTER 1.5KOHM+-10% 1/8W
RT0212	5040202	SEMI VARIABLE 2.2KOHM
RT0214	0104163	CHIP RESISTOR 2.7KOHM+-10% 1/8W
RT0215	5040204	VARIABLE RESISTOR 10KOHM
RT0216	0104167	CHIP RESISTOR 5.6KOHM+-10% 1/8W
RT0217	0104166	METAL FILM 4.7KOHM+-10% 1/8W
RT5301	0104734	CHIP RESISTOR 22KOHM+-10% 1/16W
RT5302	0104732	CHIP RESISTOR 12KOHM+-10% 1/16W
RT5307	0104732	CHIP RESISTOR 12KOHM+-10% 1/16W
RT5308	0104734	CHIP RESISTOR 22KOHM+-10% 1/16W
RT5311	0104734	CHIP RESISTOR 22KOHM+-10% 1/16W
RT5312	0104732	CHIP RESISTOR 12KOHM+-10% 1/16W
RT5313	0104732	CHIP RESISTOR 12KOHM+-10% 1/16W
RT5314	0104734	CHIP RESISTOR 22KOHM+-10% 1/16W
RT5315	0104732	CHIP RESISTOR 12KOHM+-10% 1/16W
RT5316	0104734	CHIP RESISTOR 22KOHM+-10% 1/16W
RT5601	0104734	CHIP RESISTOR 22KOHM+-10% 1/16W
RT5602	0104733	CHIP RESISTOR 15KOHM+-10% 1/16W
RT5603	0104734	CHIP RESISTOR 22KOHM+-10% 1/16W
RT5604	0104734	CHIP RESISTOR 22KOHM+-10% 1/16W
RV5602	5040127	SEMI VARIABLE 22KOHM
RV5701	5002244	VARIABLE RESISTOR 10KOHM
RV5702	5002245	VARIABLE RESISTOR
D0001	CH10451	DIODE GL453J
D0101	5337422	DIODE DA221
D0102	5337351	DIODE MA132WK
D0201	5337422	DIODE DA221
D0305	5337351	DIODE MA132WK
D0352	5337351	DIODE MA132WK
D0394	5337422	DIODE DA221
D0401	5337422	DIODE DA221
D0551	5337372	DIODE SB07-03C
D0552	CC10291R	DIODE 1SS353
D0553	CC10291R	DIODE 1SS353
D0601	CC10291R	DIODE 1SS353
D0901	CC10291R	DIODE 1SS353
D0902	CC10291R	DIODE 1SS353
D1002	CC10291R	DIODE 1SS353
D1101	5328305	DIODE MA151WA
D1102	CC10291R	DIODE 1SS353
D1103	CC10291R	DIODE 1SS353

SYMBOL-NO	P-NO	DESCRIPTION	
D1104	CC10771R	DIODE SML-010LT	
D1105	CC10291R	DIODE 1SS353	
D1201	5337422	DIODE DA221	
D1301	5337422	DIODE DA221	
D5401	CC10291R	DIODE 1SS353	
D5402	CC10291R	DIODE 1SS353	
D5403	5326022	DIODE MA160-M1D	
D5404	5337421	DIODE DAN222	
D5501	CC10291R	DIODE 1SS353	
D5601	CC10331R	DIODE HVU200A	
D5602	CC10331R	DIODE HVU200A	
IC0101	1366631	IC HA118189MP	
IC0102	CK13461R	IC UPC5023GS-101-E1	
IC0201	1366924	IC HA118192AF	
IC0202	CK12041R	IC CXL5516N	
IC0203	1352331	IC CXL5507M	
IC0204	CK13471R	IC UPC5023GS-104-E1	
IC0401	CK12231	IC HA118193F	
IC0401	CK12241	IC HA118193F	
IC0402	CK16471R	IC TDA7052AT	
IC0404	1351431	IC M5223FP	
IC0405	1351431	IC M5223FP	
IC0551	CK16251U	IC BA9735KV	
IC0601	CK18321R	IC UPC5023GS-122-E1	
IC0631	CK18331R	IC LB1950V-TLM	
IC0671	1366651	IC BA6417F	
IC0901	CK18311U	IC CXP87240117R	
IC0902	CK18271R	IC S84233FS-T2	
IC0904	CK18261R	IC BU6229FV	
IC0907	CE10171R	MODULE GP1U101X	
IC1001	UE12323	CCD IMAGE SENSOR ASSY	[TYPE535,635]
IC1001	UE12325	CCD IMAGE SENSOR ASSY	[TYPE835]
IC1101	CK18721U	IC HD49322F	
IC1102	CK12132U	IC HG51CS035TEA	
IC1103	CK12061R	IC UPD16510GR	
IC1104	CK18401U	IC HD6433042ST29F	
IC1105	CK14171R	IC MX25S67MR	
IC1201	CK13791R	IC UPC5023GS-105-E1	
IC1301	CK18711R	IC MPC17A34ZVM	
IC1401	FU10251	SENSOR,GYRO	
IC1402	FU10252	SENSOR,GYRO	
IC1403	5362204	IC NJM062M-TE1	
IC1404	1359931	IC TC4W66F	
IC5301	CK18371U	IC IR3Y29AM	
IC5401	CK18431R	IC TL5001CD	
IC5501	CK18431R	IC TL5001CD	
IC5502	1351761	IC NJM2406F	
IC5601	CK18381U	IC LZ95NA1	
IC5602	CK15331R	IC NJM3414AV	
Q0001	1322341	TRANSISTOR PT4810F	
Q0002	5327521	PHOTO TRANSISTOR SPI-315-C	
Q0003	5327521	PHOTO TRANSISTOR SPI-315-C	
Q0004	1322341	TRANSISTOR PT4810F	
Q0101	1323301	TRANSISTOR 2SB1219	
Q0102	1323294	TRANSISTOR 2SA1774RS	
Q0103	1323294	TRANSISTOR 2SA1774RS	
Q0104	1323279	TRANSISTOR DTC114YE	
Q0105	1323301	TRANSISTOR 2SB1219	
Q0106	1323279	TRANSISTOR DTC114YE	
Q0107	1323294	TRANSISTOR 2SA1774RS	
Q0108	1323279	TRANSISTOR DTC114YE	
Q0109	1323294	TRANSISTOR 2SA1774RS	
Q0110	5328966	TRANSISTOR 2SA1037K-FST	
Q0111	1323283	TRANSISTOR UMH1N	
Q0112	1323291	TRANSISTOR 2SC4617	

SYMBOL-NO	P-NO	DESCRIPTION
Q0116	1323279	TRANSISTOR DTC114YE
Q0117	1323279	TRANSISTOR DTC114YE
Q0120	1323301	TRANSISTOR 2SB1219
Q0123	1323291	TRANSISTOR 2SC4617
Q0130	1323279	TRANSISTOR DTC114YE
Q0131	1323279	TRANSISTOR DTC114YE
Q0140	1323241	TRANSISTOR XP1213
Q0170	1323301	TRANSISTOR 2SB1219
Q0171	1323253	TRANSISTOR XP4401
Q0173	1323253	TRANSISTOR XP4401
Q0175	1323291	TRANSISTOR 2SC4617
Q0176	1323294	TRANSISTOR 2SA1774RS
Q0178	1323291	TRANSISTOR 2SC4617
Q0179	1323294	TRANSISTOR 2SA1774RS
Q0201	1323241	TRANSISTOR XP1213
Q0202	1323279	TRANSISTOR DTC114YE
Q0203	1323241	TRANSISTOR XP1213
Q0204	1323291	TRANSISTOR 2SC4617
Q0206	1323253	TRANSISTOR XP4401
Q0208	1323241	TRANSISTOR XP1213
Q0209	1323241	TRANSISTOR XP1213
Q0210	1323291	TRANSISTOR 2SC4617
Q0216	1323279	TRANSISTOR DTC114YE
Q0217	1323279	TRANSISTOR DTC114YE
Q0219	1323241	TRANSISTOR XP1213
Q0221	1323241	TRANSISTOR XP1213
Q0224	1323181	TRANSISTOR XP4213
Q0225	1323294	TRANSISTOR 2SA1774RS
Q0226	1323279	TRANSISTOR DTC114YE
Q0228	1323279	TRANSISTOR DTC114YE
Q0229	1323241	TRANSISTOR XP1213
Q0231	1323279	TRANSISTOR DTC114YE
Q0232	1323294	TRANSISTOR 2SA1774RS
Q0233	1323294	TRANSISTOR 2SA1774RS
Q0350	1323291	TRANSISTOR 2SC4617
Q0352	1323294	TRANSISTOR 2SA1774RS
Q0353	1323279	TRANSISTOR DTC114YE
Q0356	1323291	TRANSISTOR 2SC4617
Q0357	1323279	TRANSISTOR DTC114YE
Q0358	1323291	TRANSISTOR 2SC4617
Q0360	1323279	TRANSISTOR DTC114YE
Q0361	1323278	TRANSISTOR DTA114YE
Q0362	1323279	TRANSISTOR DTC114YE
Q0363	1323279	TRANSISTOR DTC114YE
Q0364	1323279	TRANSISTOR DTC114YE
Q0365	1323279	TRANSISTOR DTC114YE
Q0366	1323278	TRANSISTOR DTA114YE
Q0367	1323278	TRANSISTOR DTA114YE
Q0368	1323279	TRANSISTOR DTC114YE
Q0370	1323291	TRANSISTOR 2SC4617
Q0371	1323291	TRANSISTOR 2SC4617
Q0372	1323294	TRANSISTOR 2SA1774RS
Q0373	1323279	TRANSISTOR DTC114YE
Q0374	1323279	TRANSISTOR DTC114YE
Q0390	1323279	TRANSISTOR DTC114YE
Q0395	1323291	TRANSISTOR 2SC4617
Q0401L	1323279	TRANSISTOR DTC114YE
Q0401R	1323279	TRANSISTOR DTC114YE
Q0402	1323279	TRANSISTOR DTC114YE
Q0403L	1323291	TRANSISTOR 2SC4617
Q0403R	1323291	TRANSISTOR 2SC4617
Q0404	1323291	TRANSISTOR 2SC4617
Q0409	1323291	TRANSISTOR 2SC4617
Q0410	1323291	TRANSISTOR 2SC4617
Q0411	1323301	TRANSISTOR 2SB1219

SYMBOL-NO	P-NO	DESCRIPTION
Q0412	1323279	TRANSISTOR DTC114YE
Q0413	1323294	TRANSISTOR 2SA1774RS
Q0414	1323279	TRANSISTOR DTC114YE
Q0415	1323291	TRANSISTOR 2SC4617
Q0551	1308011	TRANSISTOR MPL1
Q0552	CA10271R	TRANSISTOR 2SB1424
Q0553	CA10271R	TRANSISTOR 2SB1424
Q0555	CA10271R	TRANSISTOR 2SB1424
Q0556	1323279	TRANSISTOR DTC114YE
Q0557	CA10271R	TRANSISTOR 2SB1424
Q0558	1323291	TRANSISTOR 2SC4617
Q0559	1308011	TRANSISTOR MPL1
Q0561	1308011	TRANSISTOR MPL1
Q0562	1308011	TRANSISTOR MPL1
Q0563	1323279	TRANSISTOR DTC114YE
Q0601	1323278	TRANSISTOR DTA114YE
Q0602	1323291	TRANSISTOR 2SC4617
Q0603	1323291	TRANSISTOR 2SC4617
Q0604	1323291	TRANSISTOR 2SC4617
Q0901	1323294	TRANSISTOR 2SA1774RS
Q0902	1323291	TRANSISTOR 2SC4617
Q0903	1323278	TRANSISTOR DTA114YE
Q0904	1323294	TRANSISTOR 2SA1774RS
Q0905	5328975	TRANSISTOR 2SC2412K
Q0907	1323279	TRANSISTOR DTC114YE
Q0909	1323279	TRANSISTOR DTC114YE
Q0911	1323291	TRANSISTOR 2SC4617
Q0912	1323291	TRANSISTOR 2SC4617
Q1001	5328221	TRANSISTOR 2SC2620-QC
Q1101	5328966	TRANSISTOR 2SA1037K-FST
Q1102	5328975	TRANSISTOR 2SC2412K
Q1103	5328966	TRANSISTOR 2SA1037K-FST
Q1108	1323279	TRANSISTOR DTC114YE
Q1201	5328975	TRANSISTOR 2SC2412K
Q1202	5328975	TRANSISTOR 2SC2412K
Q1203	1323141	TRANSISTOR 2SC2411K
Q1401	1323279	TRANSISTOR DTC114YE
Q5301	1323294	TRANSISTOR 2SA1774RS
Q5302	1323271	TRANSISTOR DTC144EE
Q5401	1323272	TRANSISTOR DTA144EE
Q5402	1323271	TRANSISTOR DTC144EE
Q5403	1323294	TRANSISTOR 2SA1774RS
Q5404	1323271	TRANSISTOR DTC144EE
Q5405	1323293	TRANSISTOR 2SC4617 (R/S)
Q5406	CA10793R	TRANSISTOR 2SB1122ST
Q5501	1323272	TRANSISTOR DTA144EE
Q5502	1323279	TRANSISTOR DTC114YE
Q5503	1323271	TRANSISTOR DTC144EE
Q5504	1323271	TRANSISTOR DTC144EE
Q5505	1323293	TRANSISTOR 2SC4617 (R/S)
Q5506	1323293	TRANSISTOR 2SC4617 (R/S)
Q5507	1323271	TRANSISTOR DTC144EE
Q5508	1323272	TRANSISTOR DTA144EE
Q5509	1323271	TRANSISTOR DTC144EE
Q5510	1323293	TRANSISTOR 2SC4617 (R/S)
Q5511	CA10771R	TRANSISTOR FP102-TL
Q5512	1323012	TRANSISTOR 2SC3647
Q5513	1323012	TRANSISTOR 2SC3647
Q5514	1323278	TRANSISTOR DTA114YE
Q5601	1323293	TRANSISTOR 2SC4617 (R/S)
Q5602	1323294	TRANSISTOR 2SA1774RS
Q5604	1323271	TRANSISTOR DTC144EE
Q5605	1323279	TRANSISTOR DTC114YE
Q5606	1323279	TRANSISTOR DTC114YE
ZD5601	CC10575R	DIODE RD5.1UMB2

SYMBOL-NO	P-NO	DESCRIPTION
ZD5702	CC10448R	DIODE MA3056M
T0551	5148333	TRANSFORMAR,POWER
T5401	BC10211R	TRANSFORMER,DC
T5501	BC10201U	TRANSFORMER
L0101	0773001	CHOCE COIL 10UH+-10%
L0102	0773004	COIL 100UH
L0103	0773124	CHOKE COIL 27UH+-5%
L0104	0773001	CHOCE COIL 10UH+-10%
L0105	0773117	CHOKE COIL 8.2UH+-5%
L0107	BA10315R	COIL 150UH
L0108	0773135	CHOKE COIL 180UH+-5%
L0109	BA10318R	COIL 470UH
L0110	BA10309R	COIL 22UH
L0111	BA10317R	COIL 330UH
L0170	0773001	CHOCE COIL 10UH+-10%
L0171	0773001	CHOCE COIL 10UH+-10%
L0172	BA10313R	COIL 68UH
L0173	BA10308R	COIL 15UH
L0201	0773124	CHOKE COIL 27UH+-5%
L0203	BA10307R	COIL 10UH
L0204	0773133	CHOKE COIL 120UH+-5%
L0205	0773003	COIL 47UH
L0206	0773003	COIL 47UH
L0207	BA10313R	COIL 68UH
L0350	0773003	COIL 47UH
L0401	0773003	COIL 47UH
L0402	0773001	CHOCE COIL 10UH+-10%
L0551	BA10127R	COIL 10UH
L0552	BA10128R	COIL 22UH
L0554	BA10128R	COIL 22UH
L0556	BA10135R	COIL 10UH
L0559	0773004	COIL 100UH
L0560	0773004	COIL 100UH
L0561	BA10129R	COIL 47UH
L0563	BA10127R	COIL 10UH
L0564	BA10129R	COIL 47UH
L0565	BA10129R	COIL 47UH
L0566	0773001	CHOCE COIL 10UH+-10%
L0601	0773002	COIL 22UH
L0902	BA10308R	COIL 15UH
L0903	0773002	COIL 22UH
L0904	0773001	CHOCE COIL 10UH+-10%
L0906	0773002	COIL 22UH
L0908	0773003	COIL 47UH
L0909	0773003	COIL 47UH
L1101	0773003	COIL 47UH
L1102	0773005	COIL 220UH
L1103	BA10314R	COIL 100UH
L1104	0773003	COIL 47UH
L1105	0773001	CHOCE COIL 10UH+-10%
L1106	0773001	CHOCE COIL 10UH+-10%
L1107	0773002	COIL 22UH
L1109	0773005	COIL 220UH
L1301	0773002	COIL 22UH
L5301	BA10334R	COIL 10UH
L5302	BA10336R	COIL 47UH
L5303	0773181	COIL 100UH
L5401	BA10334R	COIL 10UH
L5402	BA10337R	COIL 100UH
L5403	BA10337R	COIL 100UH
L5404	BA10337R	COIL 100UH
L5501	BA10333R	COIL 4.7UH
L5502	BA10136R	COIL 22UH
L5503	BA10137R	COIL 150UH
L5601	BA10334R	COIL 10UH

SYMBOL-NO	P-NO	DESCRIPTION
L5602	BA10334R	COIL 10UH
L5603	BA10334R	COIL 10UH
L5604	0773172	COIL 22UH
X0201	1930211	CRYSTAL
X0901	BL10572R	CRYSTAL
X0902	BL10311R	CRYSTAL
X1101	1930094	CRYSTAL
X5301	BL10192R	CRYSTAL
CN0901	1880371	CONNECTOR
CP0202	BE10231R	LC FILTER
CP0203	BE10341R	FILTER, BAND PASS
CP0204	BE10343R	FILTER, BAND PASS
CP0205	5172734	DELAY LINE
CP0206	5172735	FILTER, LOW PASS
CP1101	BE10411R	FILTER, LOW PASS
CP1101	BE10412R	FILTER, LOW PASS
⚠ F0551	FM10132R	FUSE 1.6A
⚠ F0552	FM10134R	FUSE 125V
⚠ F0553	FM10134R	FUSE 125V
JK0200	5695292	JACK
PG0001	5666921	MINI PLUG
PG0101	EA10501R	PLUG
PG0401L	5668671	MINI PLUG
PG0401R	5668673	MINI PLUG
PG0402	5669191	PLUG
PG0551	5669175	PLUG
PG0601	5692362	MINI PLUG
PG0602	EA10641R	PLUG
PG0603	EA10501R	PLUG
PG0604	5668671	MINI PLUG
PG0901	EA10651R	PLUG
PG0902	5668754	PLUG
PG0903	5669193	MINI PLUG
PG0904	5669197	PLUG
PG0905	5669166	PLUG
PG1001	1830344	PLUG
PG1101	1830343	PLUG
PG1103	1830355	PLUG
PG1301	EA10377R	PLUG
PG5501	EA10132R	PLUG
PG5701	5669197	PLUG
PG5702	EA11071R	PLUG
S0003	5636171	SWITCH
S0004	5636171	SWITCH
S0005	5636171	SWITCH
S0006	5635331	SWITCH
S0007	5613523	SWITCH
SW0902	1742011	SWITCH
SW0903	1742011	SWITCH
SW0904	1742011	SWITCH
SW0905	1742011	SWITCH
SW0906	FB10201R	SWITCH
SW5701	FB10201R	SWITCH

B/W EVF[EMO]SECTION[TYPE510,110]

C2001	0806169	ELECTROLYTIC 47UF 16V
C2002	0806169	ELECTROLYTIC 47UF 16V
C2003	0806146	ELECTROLYTIC 2.2UF 50V
C2004	0268437	POLYPROPYLENE 4700PF+-5% 100V
C2005	0256871	ELECTROLYTIC 47UF 25V
C2006	0249655	CERAMIC CHIP 1000PF+-10% 1000V
C2007	0249656	CERAMIC CHIP 1000PF+-10% 500V
C2008	0806146	ELECTROLYTIC 2.2UF 50V
C2009	0893086	CERAMIC CHIP 0.1UF+80-20% 50V
C2011	0209852	CERAMIC CHIP 180PF+-5% 50V
C2012	0893086	CERAMIC CHIP 0.1UF+80-20% 50V
C2013	0893086	CERAMIC CHIP 0.1UF+80-20% 50V
C2014	0268521	MYLAR 0.1UF+-10% 50V
C2015	0202151	CERAMIC CHIP 2200PF+-5% 50V
C2016	0893044	CERAMIC CHIP 0.01UF+-10% 50V
C2017	0806145	ELECTROLYTIC 1UF 50V
C2018	0893062	CERAMIC CHIP 1UF+80-20% 16V
R2001	0103852	CHIP RESISTOR 5.6KOHM+-5% 0.1W
R2002	0103869	CHIP RESISTOR 150KOHM+-5% 0.1W
R2003	0103876	CHIP RESISTOR 560KOHM+-5% 0.1W
R2004	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R2005	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R2006	0103819	CHIP RESISTOR 10 OHM+-5% 0.1W
R2007	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R2008	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R2009	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R2011	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R2012	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R2013	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R2014	0103846	CHIP RESISTOR 1.8KOHM+-5% 0.1W
R2015	0103862	CHIP RESISTOR 39KOHM+-5% 0.1W
R2016	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W
R2017	0103846	CHIP RESISTOR 1.8KOHM+-5% 0.1W
R2018	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R2019	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R2020	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R2021	0103855	CHIP RESISTOR 10KOHM+-5% 0.1W
R2022	0103831	CHIP RESISTOR 100 OHM+-5% 0.1W
R2024	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R2025	0103874	CHIP RESISTOR 390KOHM+-5% 0.1W
R2026	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R2027	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
RT2001	5035204	SEMI VARIABLE 2.2MOHM
RT2002	5030251	SEMI VARIABLE 1MOHM
RT2003	5040103	SEMI VARIABLE 470 OHM
D2001	5337133	DIODE MA141K
D2002	5337321	DIODE MA199
IC2001	1365881	IC HA118179F
Q2001	5323831	TRANSISTOR 2SD974
Q2002	5326682	TRANSISTOR XN1B301
T2001	5240566	TRANSFORMER
L2001	0773003	COIL 47UH
L2002	5244017	COIL
CN2002	EF10248	CONNECTOR
⚠ CS2001	5887005	SOCKET
PG2001	5669631	CONNECTOR
PG2002	5668469	PLUG

CHAPTER 6 SCHEMATIC, CIRCUIT BOARD AND BLOCK DIAGRAMS/ MICROPROCESSOR PIN FUNCTION TABLE

Cautions when using schematic diagrams

Caution for safety

The parts marked ⚠ are critical for safety. Be sure to use the specified parts to ensure safety when replacing them.

1. Values in schematic diagrams

The values, dielectric strength (power capacitance) and tolerances of the resistors (excluding variable resistors) and capacitors are indicated in the schematic diagrams using abbreviations.

[Resistors]

Item	Indication
Value	No indication ..... Ω K ..... k Ω M ..... M Ω
Tolerance	No indication ..... ± 5% (All tolerances other than ± 5% are indicated in the schematic diagrams)
Power capacitance	No indication ..... 1/8W (1/16W for leadless resistors without indication) All capacitances other than the above are indicated in the schematic diagrams.

[Capacitors]

Item	Indication
Value	No indication ..... μ F P ..... pF
Dielectric strength	No indication ..... 50V (All dielectric strengths other than 50V are indicated in the schematic diagrams.)

[Coils]

Item	Indication
Value	μ ..... μ H m ..... mH

2. Markings in schematic diagrams

1) Parts marked " ■ " with circuit numbers in the schematic diagrams are discrete parts.
2) Parts marked " ● " with circuit numbers in the schematic diagrams are leadless parts.

Cautions when using circuit board diagrams

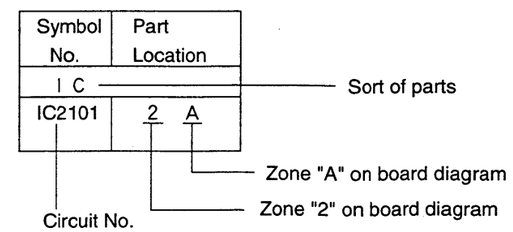
1. Identifications of sides A/B in circuit board diagrams

1) Board having a pattern on one side and parts on both sides.
   Side A: Shows discrete parts, viewed from the pattern side.
   Side B: Shows leadless parts, viewed from the pattern side.
2) Board having patterns on both sides and parts on both sides.
   Side A: Shows parts and patterns which can be seen when the case is opened.
   Side B: Shows parts and the pattern on the back of side A.

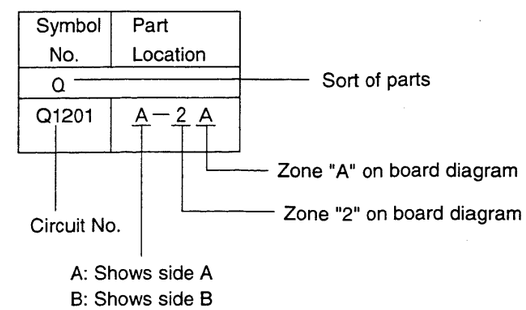
2. Table for indexing locations of parts

This table shows locations of each part on the circuit board diagrams. The locations are indicated using the guide scales on the external lines of diagrams.

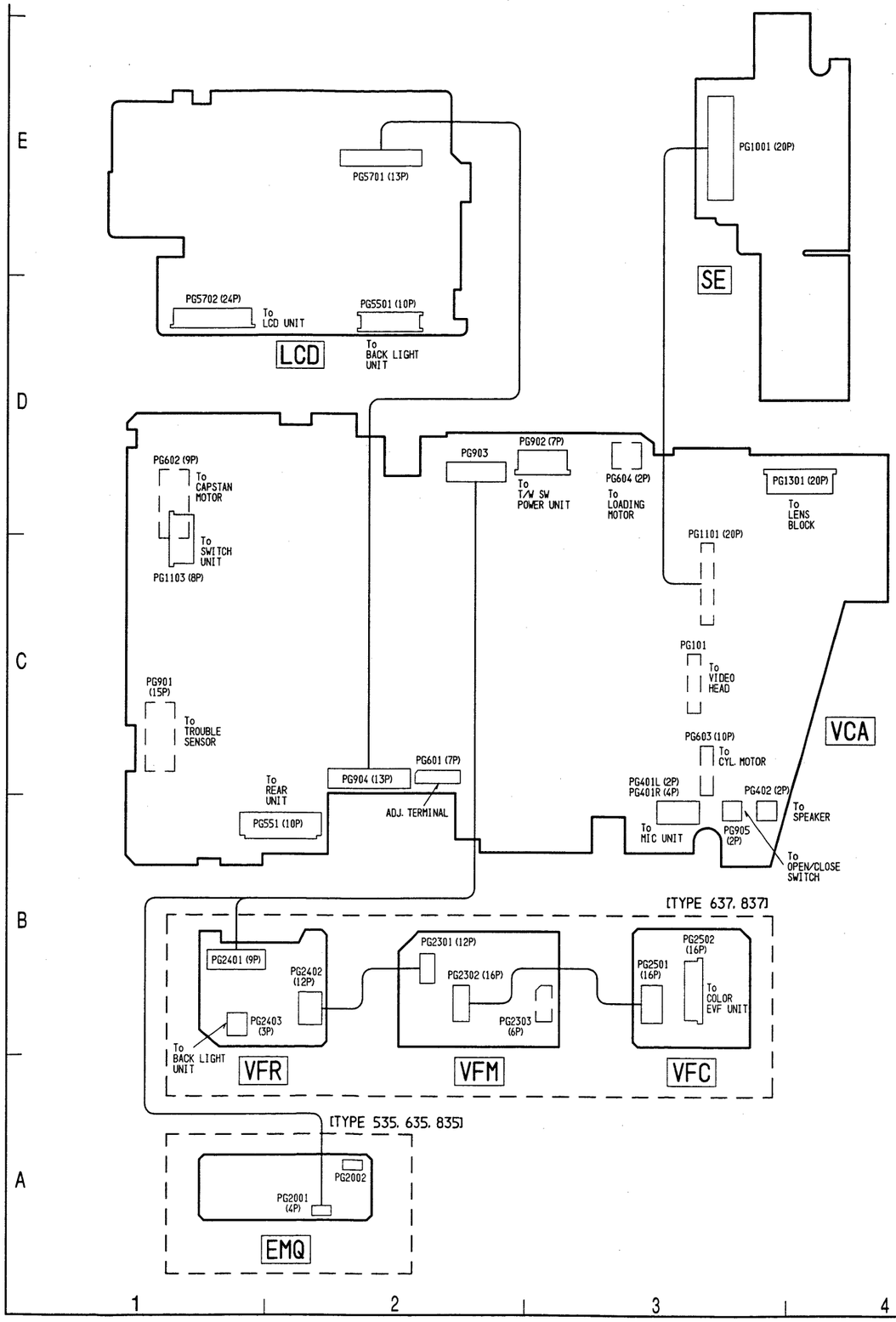
1) In case of one-layer board



2) In case of side A/B indication board



INTERNAL WIRING DIAGRAM

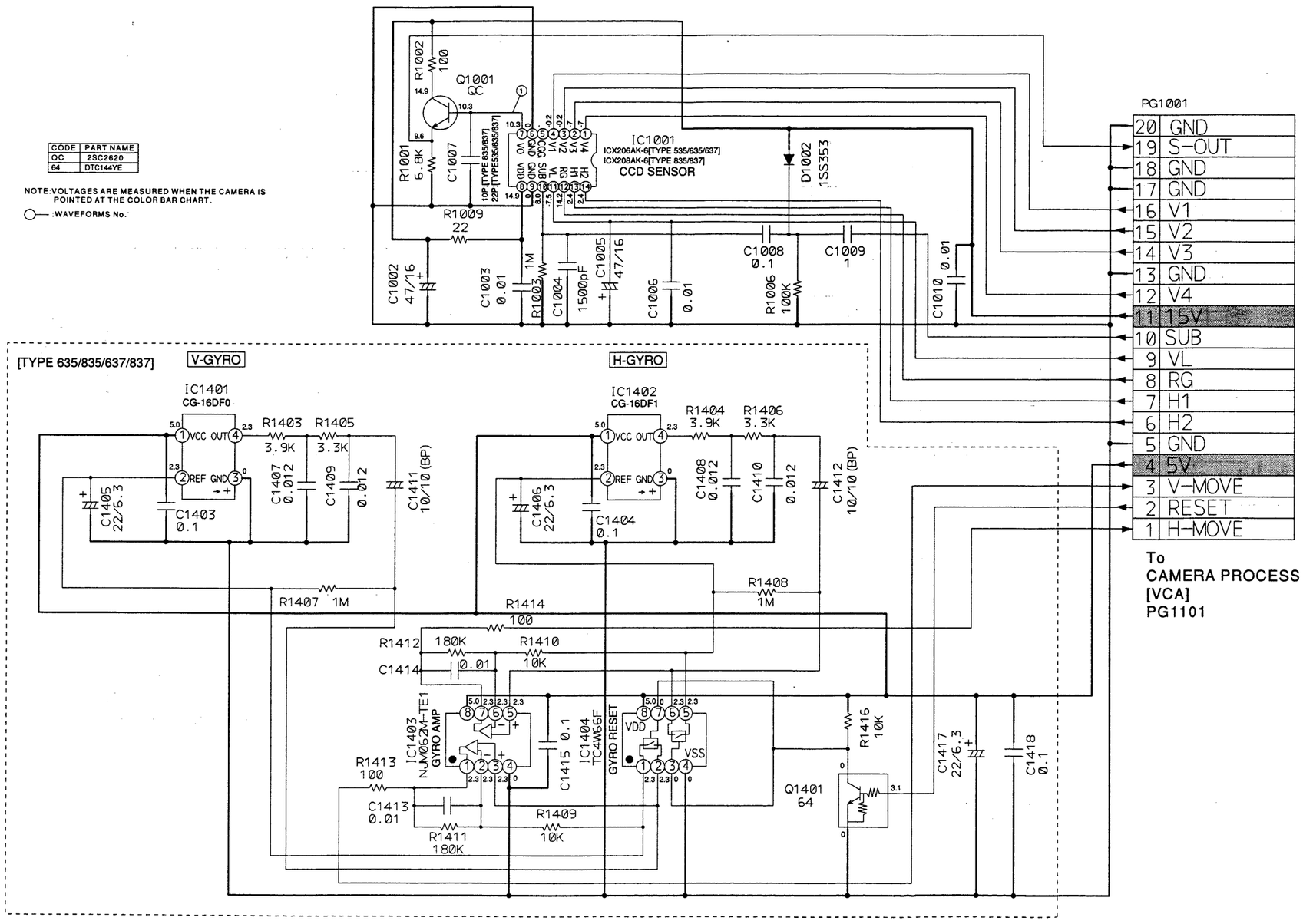


SENSOR/GYRO [SE] SCHEMATIC DIAGRAM

CODE	PART NAME
QC	2SC2620
64	DTC144YE

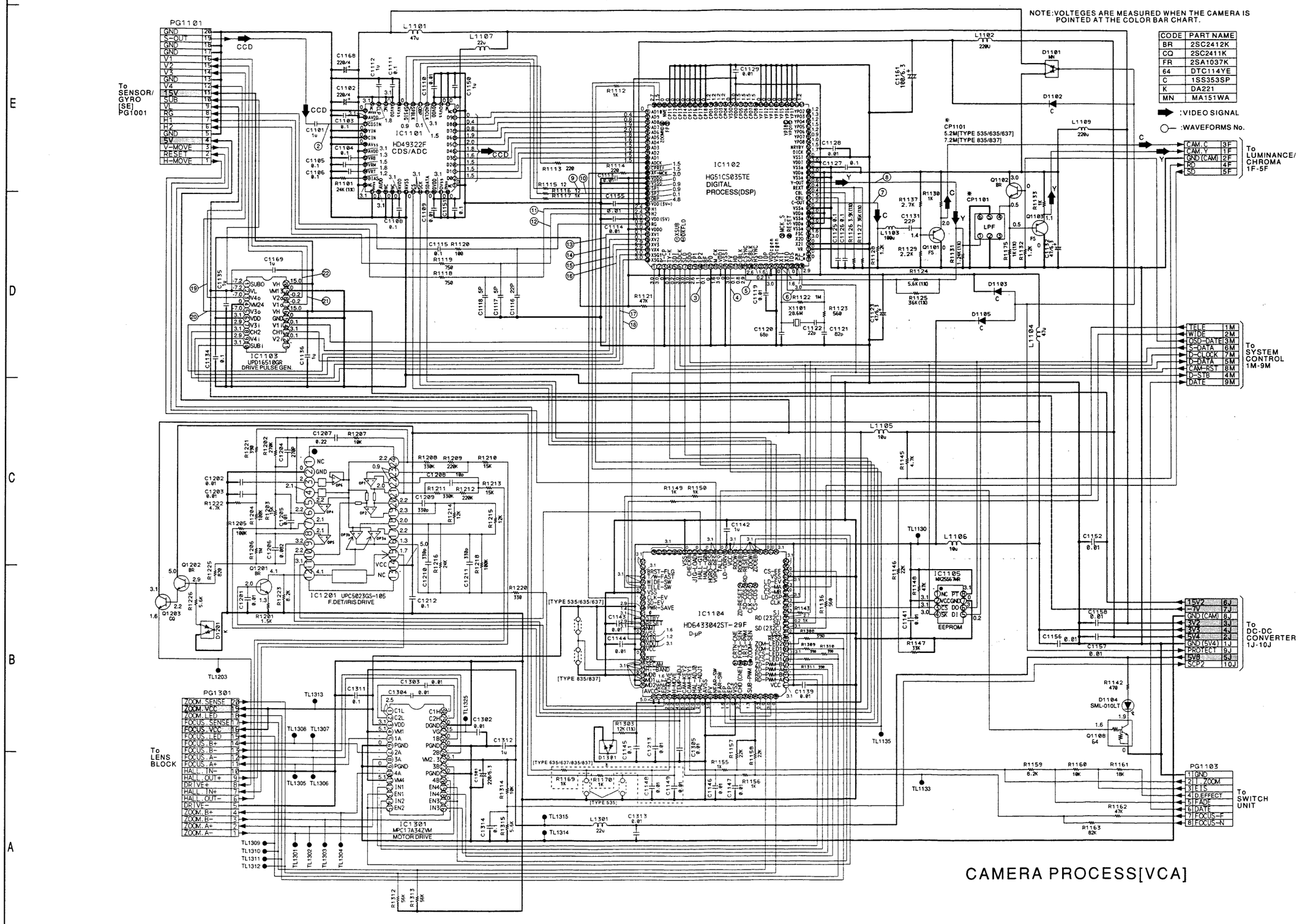
NOTE:VOLTAGES ARE MEASURED WHEN THE CAMERA IS POINTED AT THE COLOR BAR CHART.

◯— :WAVEFORMS No.

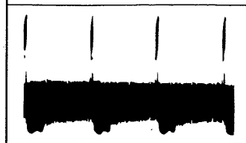
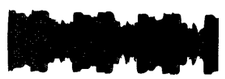
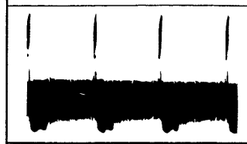
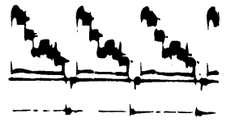
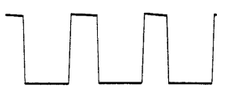
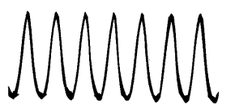
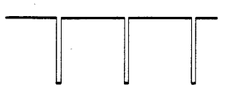
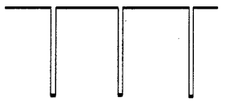
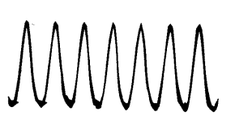
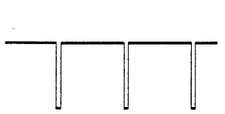
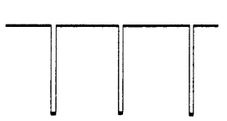
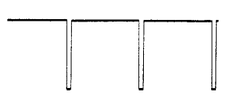
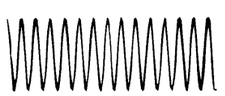
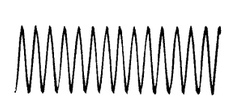
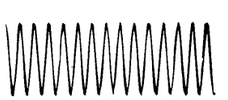


SENSOR/GYRO[SE]

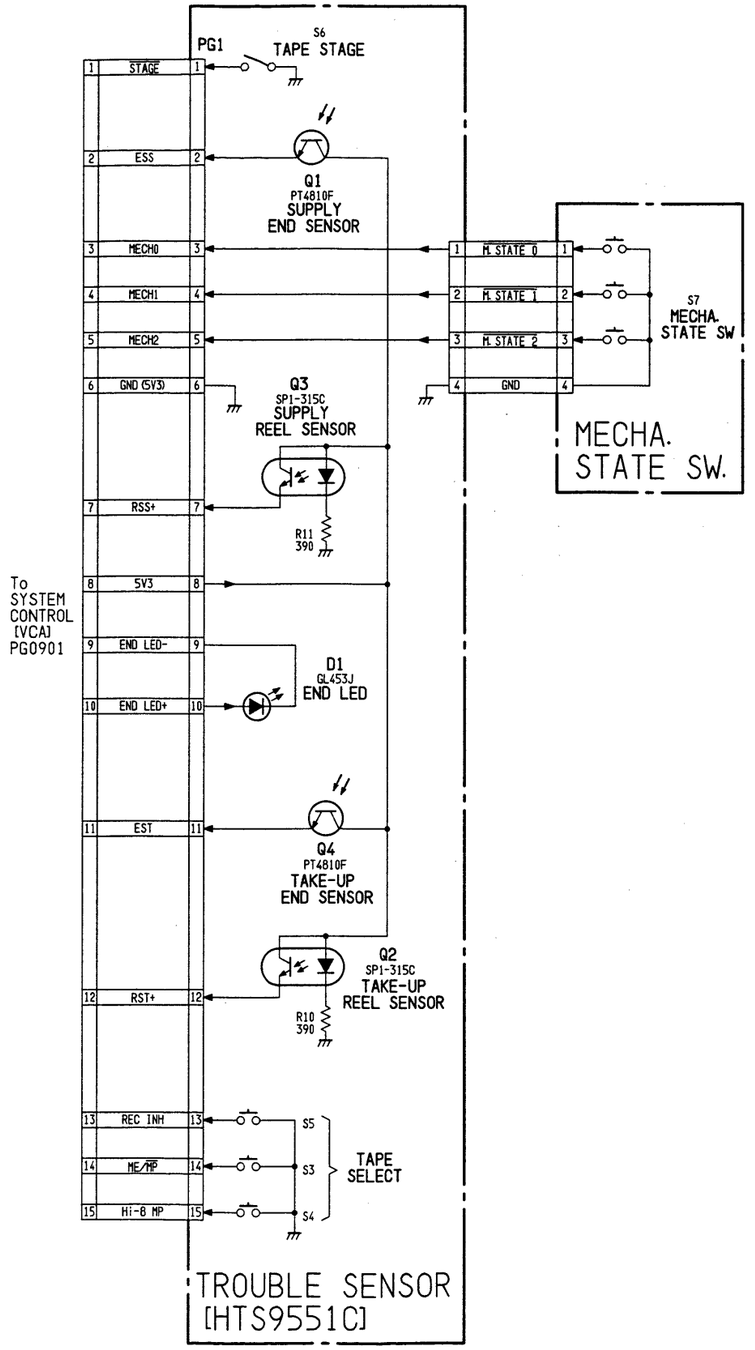
CAMERA PROCESS [VCA] SCHEMATIC DIAGRAM



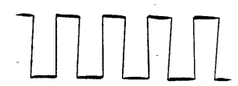
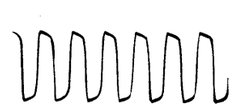
WAVEFORMS[CAMERA]

1-A IC1001-7 1.1Vp-p 0.2V/20.0 sec.cm COLOR CHART	7-A IC1102-42 550mVp-p 0.2V/20.0 sec.cm COLOR CHART	13-A IC1102-115 3.1Vp-p 1V/20.0 sec.cm COLOR CHART	19-A IC1103-3 7.3Vp-p 2V/20.0 sec.cm COLOR CHART
			
2-A IC1101-27 1.1Vp-p 0.2V/20.0 sec.cm COLOR CHART	8-A IC1102-46 1.0Vp-p 0.2V/20.0 sec.cm COLOR CHART	14-A IC1102-116 3.1Vp-p 1V/20.0 sec.cm COLOR CHART	20-A IC1103-5 7.3Vp-p 2V/20.0 sec.cm COLOR CHART
			
3-A IC1102-10 3.0Vp-p 1V/5.0msec.cm COLOR CHART	9-A IC1102-106 4.2Vp-p 1V/50.0nsec.cm COLOR CHART	15-A IC1102-117 3.1Vp-p 1V/20.0 sec.cm COLOR CHART	21-A IC1103-17 7.3Vp-p 2V/20.0 sec.cm COLOR CHART
			
4-A IC1102-16 3.0Vp-p 1V/5.0msec.cm COLOR CHART	10-A IC1102-107 4.2Vp-p 1V/50.0nsec.cm COLOR CHART	16-A IC1102-118 3.1Vp-p 1V/20.0 sec.cm COLOR CHART	22-A IC1103-18 7.3Vp-p 2V/20.0 sec.cm COLOR CHART
			
5-A IC1102-19 3.0Vp-p 1V/20.0 sec.cm COLOR CHART	11-A IC1102-110 7.0Vp-p 2V/100 sec.cm COLOR CHART	17-A IC1102-119 3.1Vp-p 1V/5.0msec.cm COLOR CHART	
			
6-A IC1102-27 1.6Vp-p 0.5V/50.0nsec.cm COLOR CHART	12-A IC1102-111 7.0Vp-p 2V/100nsec.cm COLOR CHART	18-A IC1102-120 3.1Vp-p 1V/5.0msec.cm COLOR CHART	
			

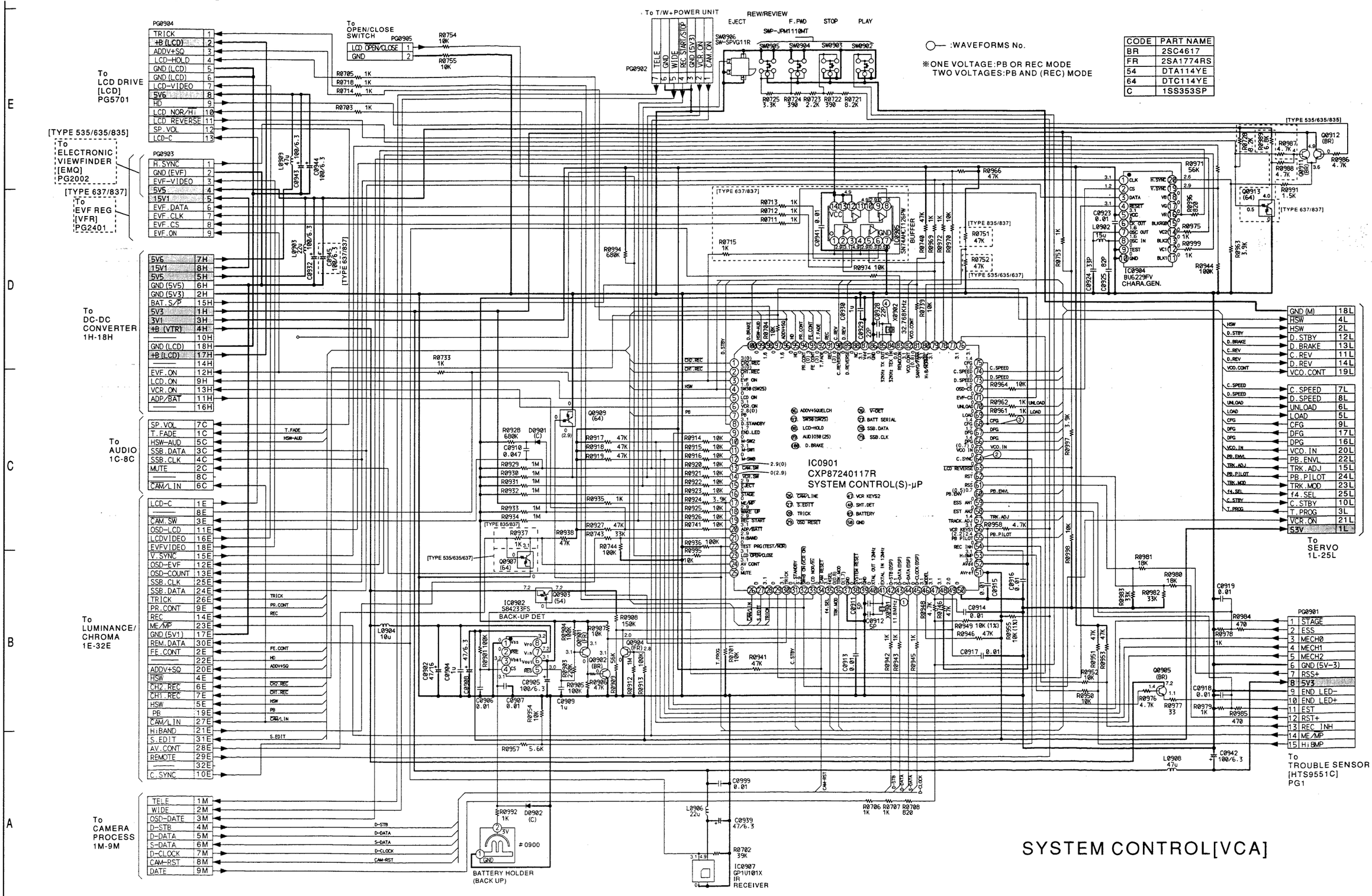
TROUBLE SENSOR [HTS9551C] SCHEMATIC DIAGRAM



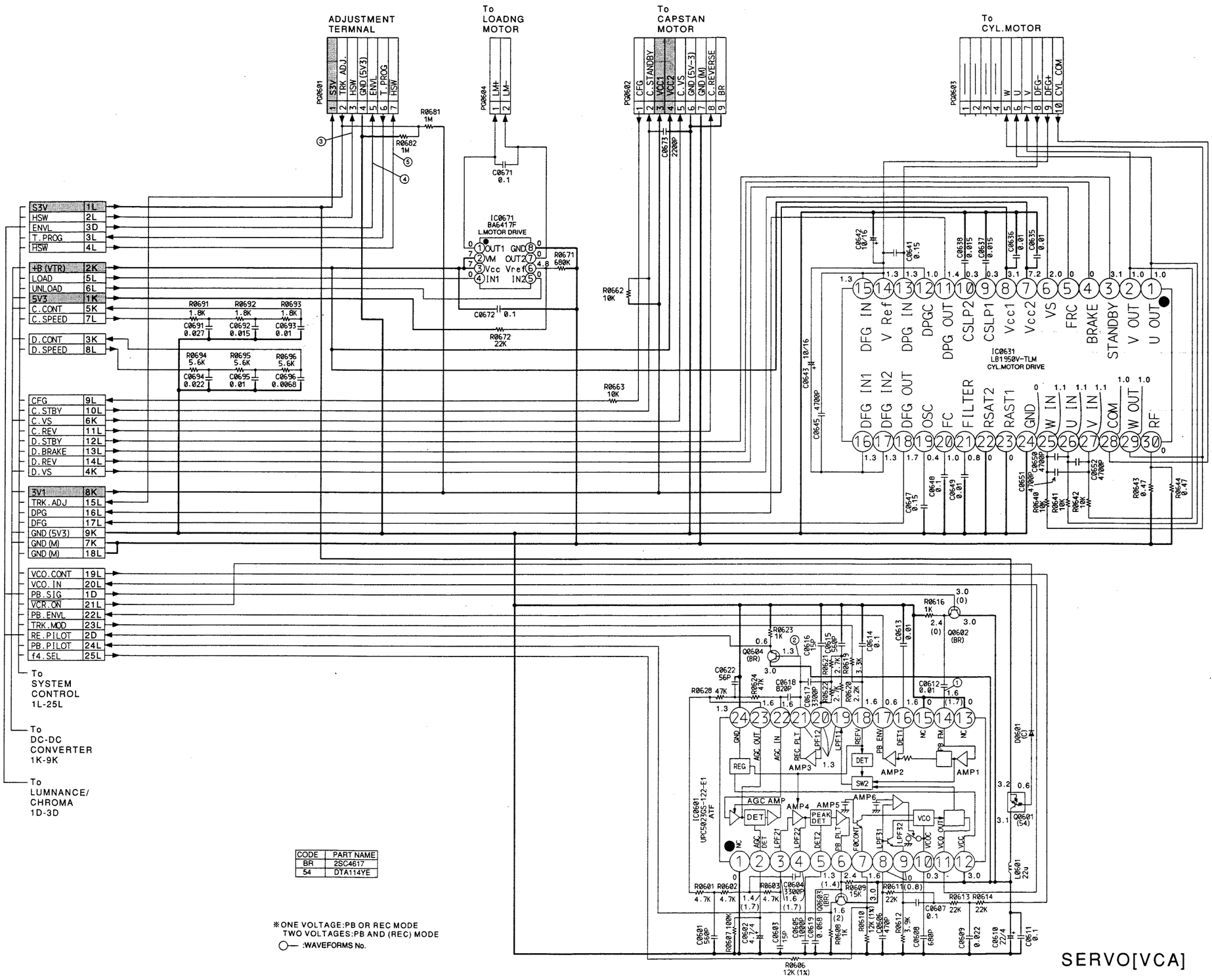
WAVEFORMS[SERVO]

1-A IC901-41 2.8Vp-p 1V/100nsec.cm REC/PLAY
2-A IC901-64 4.9Vp-p 1V/20.0 sec.cm REC/PLAY
3-A IC901-68 3.2Vp-p 1V/500 sec.cm REC/PLAY

4-A IC901-85 3.4Vp-p 1V/20.0 sec.cm REC/PLAY


SYSTEM CONTROL [VCA] SCHEMATIC DIAGRAM



SERVO [VCA] SCHEMATIC DIAGRAM



CODE	PART NAME
BR	2SC4617
54	DTA114YE

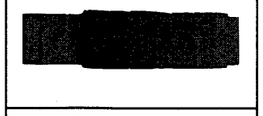
※ONE VOLTAGE:PB OR REC MODE
TWO VOLTAGES:PB AND (REC) MODE
○— :WAVEFORMS No.

SERVO[VCA]

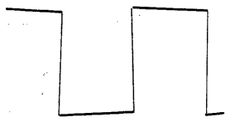
WAVEFORMS[SERVO]

1-A IC601-14 200mVp-p
0.1V/5.0msec.cm
PLAY

2-A IC601-21 560mVp-p
0.2V/5.0msec.cm
REC

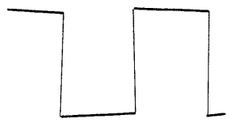


3-A PG601-3 3.3Vp-p
1V/5.0msec.cm
REC/PLAY

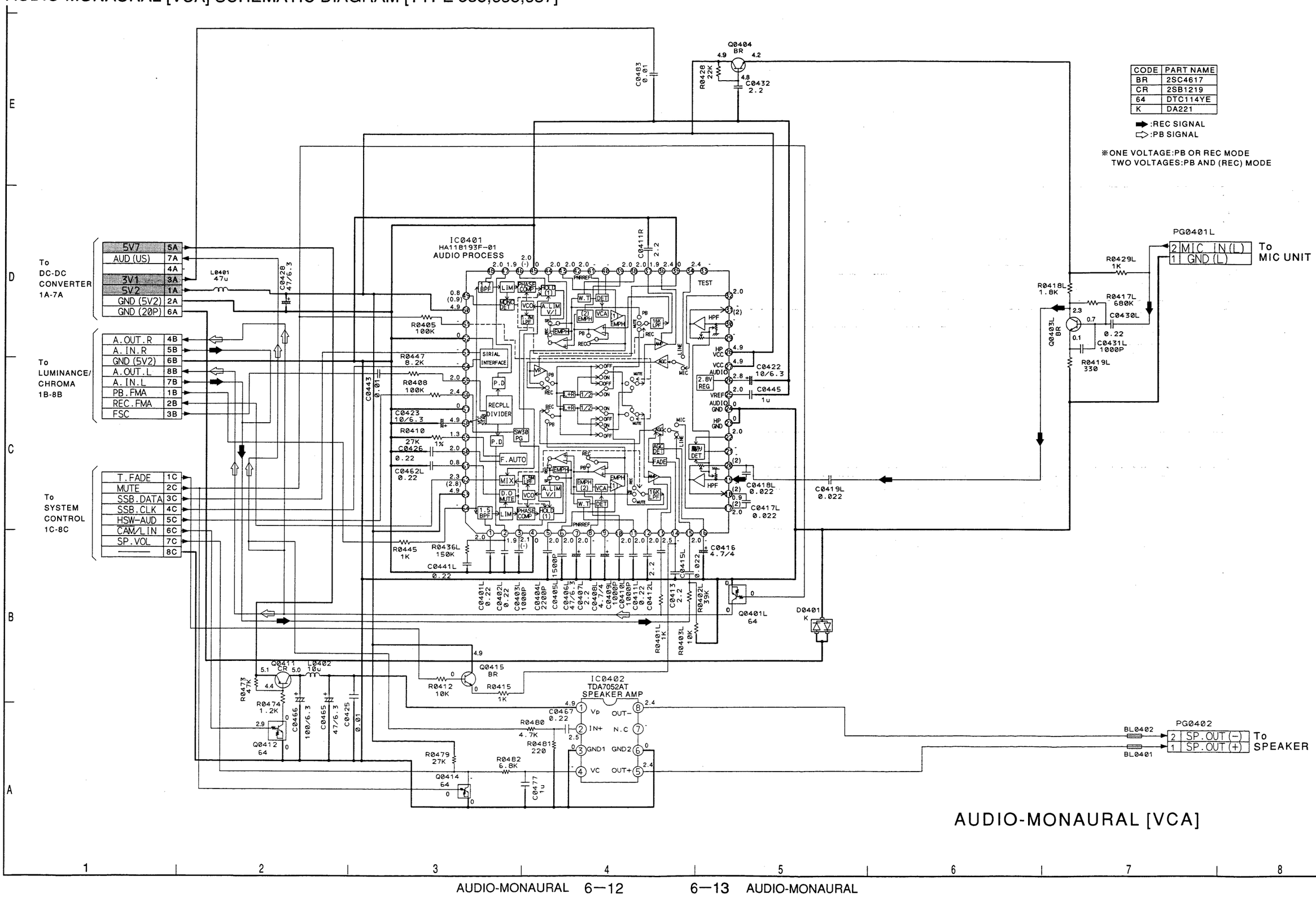


4-A PG601-5 150mVp-p
0.1V/5.0msec.cm
PLAY

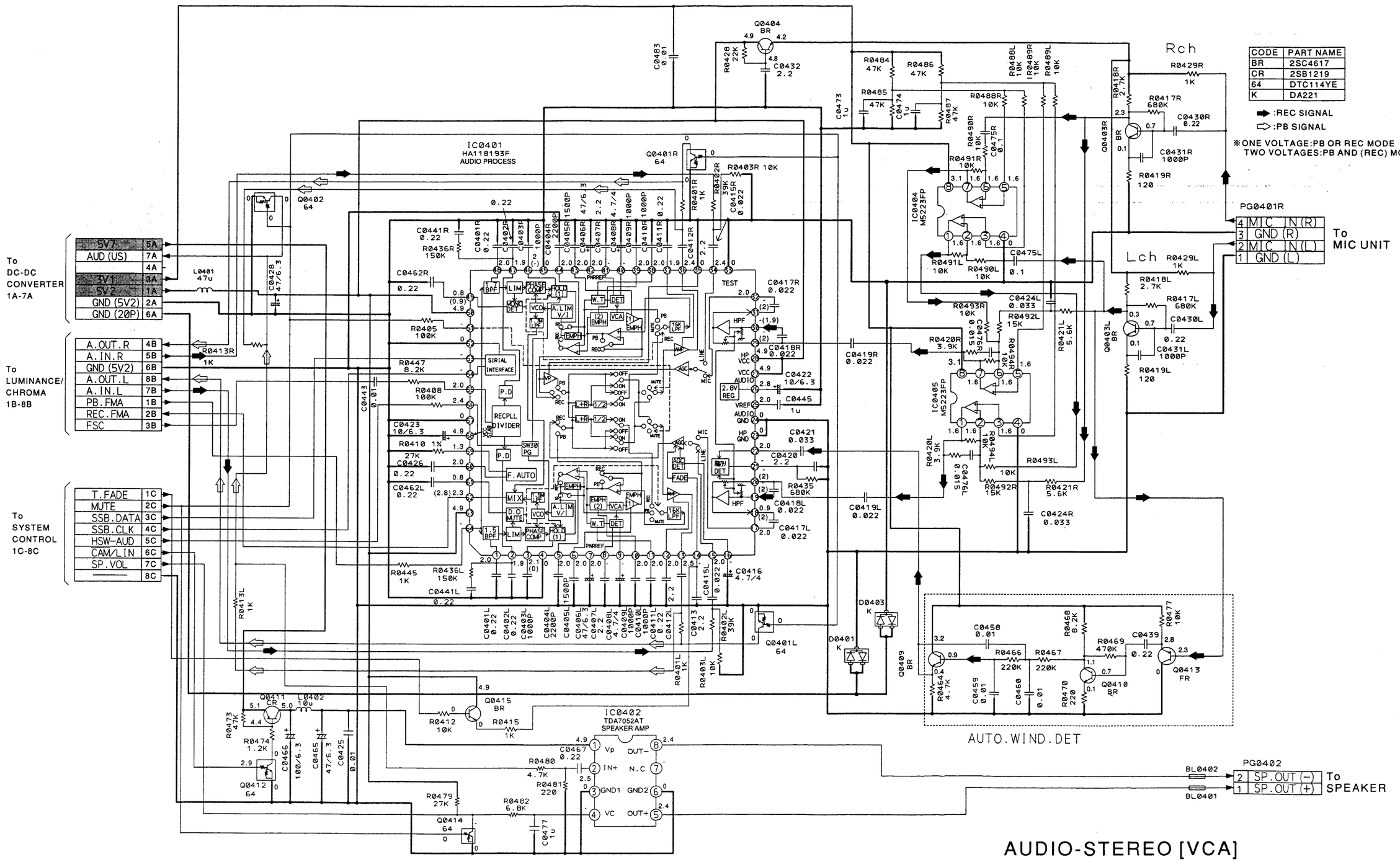
5-A PG601-7 2.4Vp-p
0.5V/5.0msec.cm
REC/PLAY



AUDIO-MONAURAL [VCA] SCHEMATIC DIAGRAM [TYPE 535,635,637]

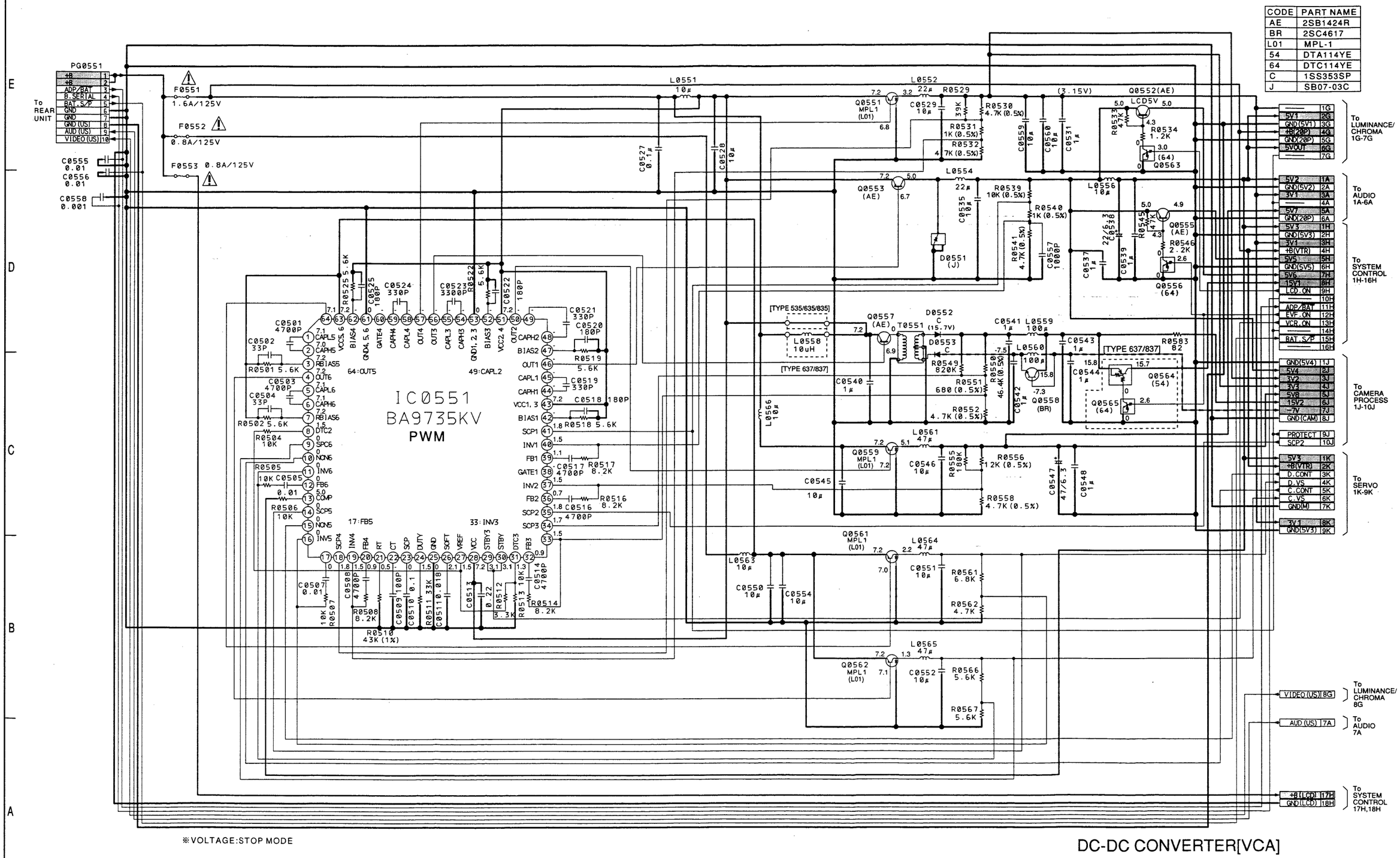


AUDIO-STEREO [VCA] SCHEMATIC DIAGRAM [TYPE 835,837]



AUDIO-STEREO [VCA]

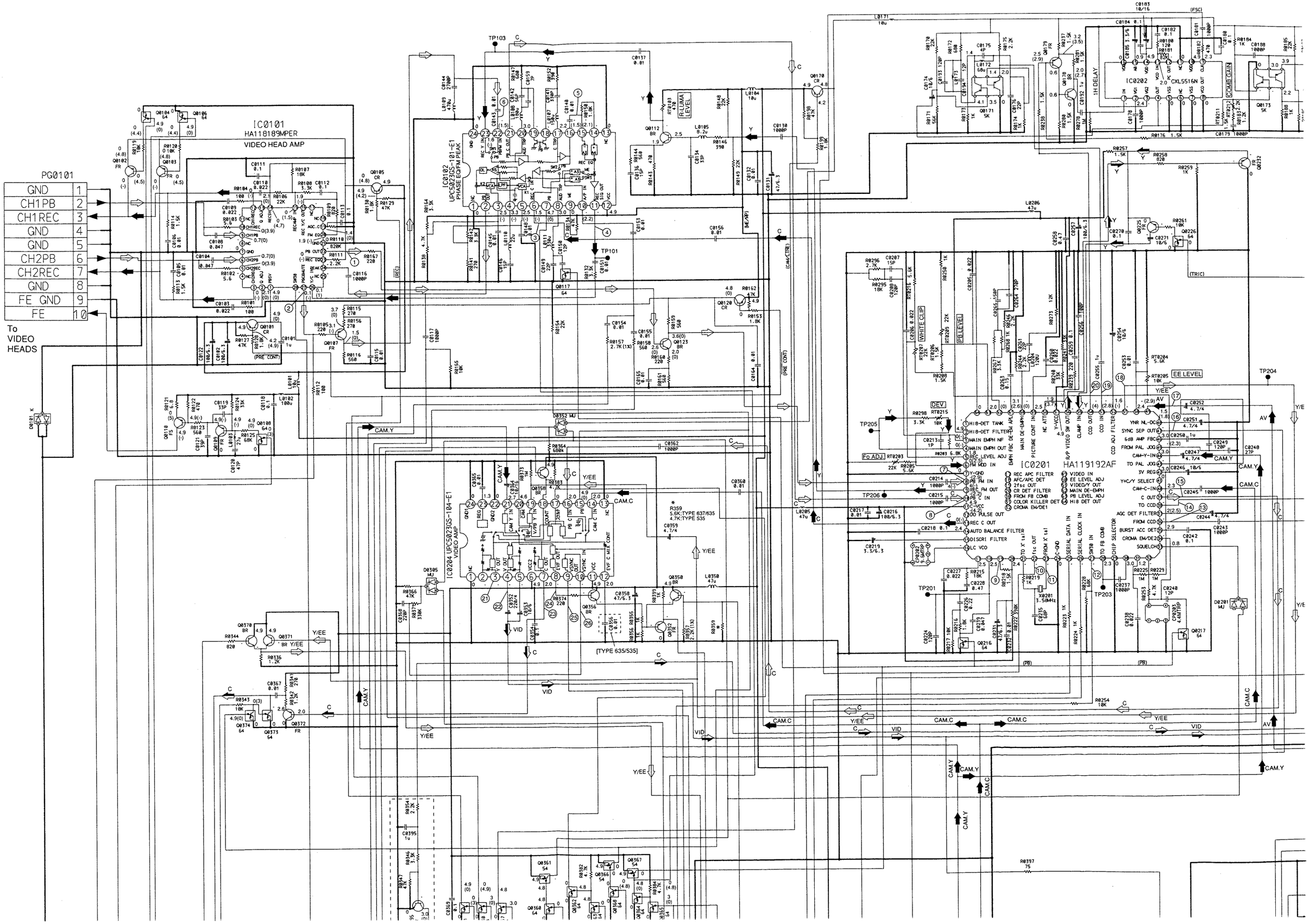
DC-DC CONVERTER [VCA] SCHEMATIC DIAGRAM



CODE	PART NAME
AE	2SB1424R
BR	2SC4617
L01	MPL-1
54	DTA114YE
64	DTC114YE
C	1SS353SP
J	SB07-03C

DC-DC CONVERTER[VCA]

LUMINANCE/CHROMA [VCA] SCHEMATIC DIAGRAM [TYPE 535,635,637]



635,637]

CODE	PART NAME
BR	2SC4617
CR	2SB1219
FR	2SA1774RS
FS	2SA1037K
54	DTA114YE
64	DTC114YE
9L	XP1213
H1	IMH1
5K	XP4401
8C	DTC114YE
8S	XP4213
MU	MA132WK
K	DA221

:REC SIGNAL

:PB SIGNAL

:REC/PB SIGNAL

※ONE VOLTAGE:PB OR REC MODE
TWO VOLTAGES:PB AND (REC) MODE

○— :WAVEFORMS No.

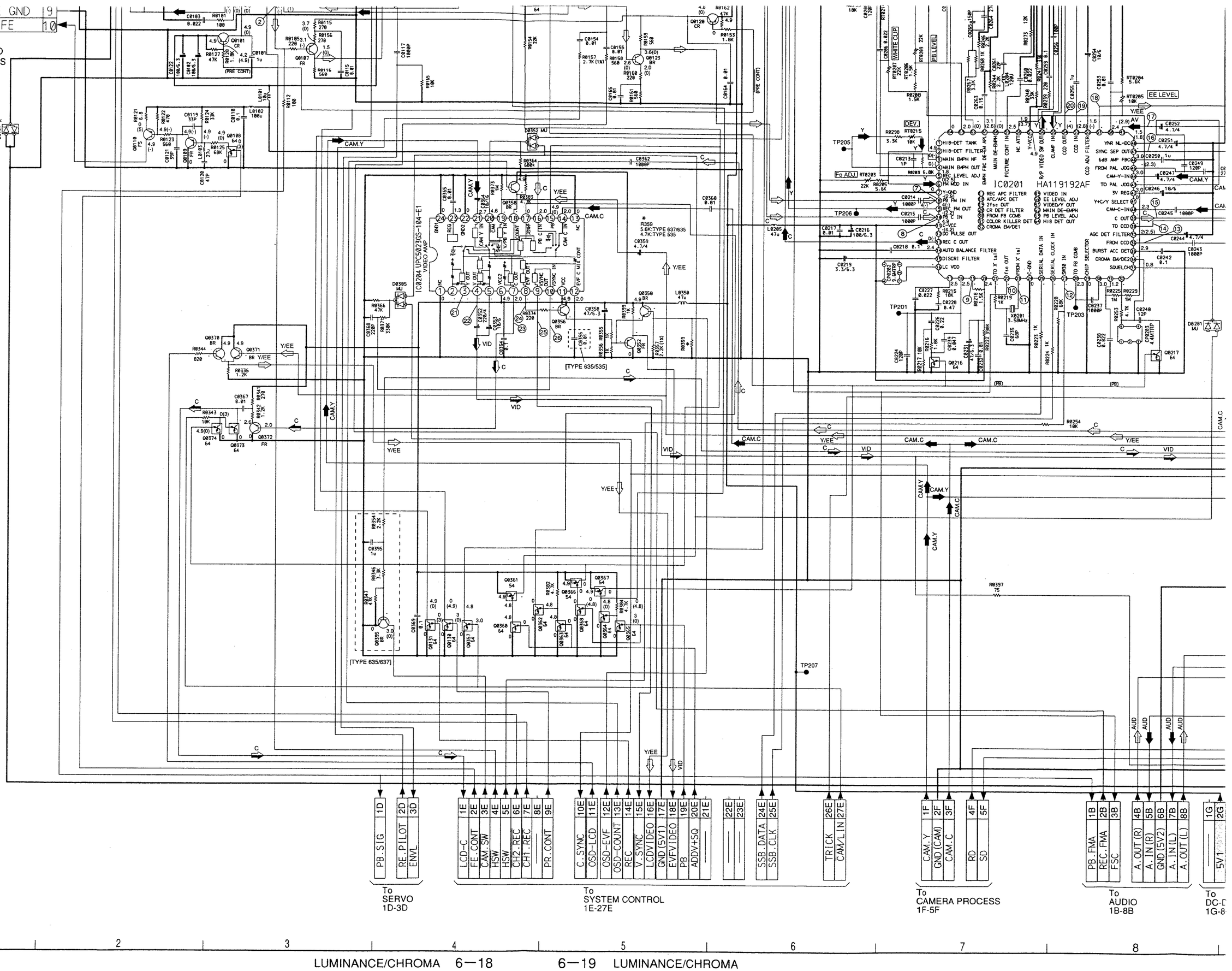
IC0102 UPC5023GS-101-E1 PHASE EQ/PM PEAK

IC0204 UPC5023GS-104-E1 VIDEO AMP

IC0201 HA119192AF

IC0202 CXL5516N

[TYPE 635/535]


FE GND 19
FE 10
To VIDEO HEADS
IC0204 UPC5027GS-104-E1 VIDEO AMP
IC0201 HA119192AF
[TYPE 635/535]
[TYPE 635/637]
R359 5.6K:TYPE 637/635 4.7K:TYPE 535
CAM.Y
CAM.C
Y/EE
VID
PB
REC
TP205
TP206
TP201
TP203
TP207
PB.SIG 1D
RE.PILOT 2D
ENVL 3D
To SERVO 1D-3D
LCD-C 1E
FE.CONT 2E
CAM.SW 3E
HSW 4E
HSW 5E
CH2.REC 6E
CH1.REC 7E
PR.CONT 9E
C.SYNC 10E
OSD-LCD 11E
OSD-EVF 12E
OSD-COUNT 13E
REC 14E
V.SYNC 15E
LCDVIDEO 16E
GND(5V1) 17E
EVFVIDEO 18E
PB 19E
ADDV+SQ 20E
21E
22E
23E
SSB.DATA 24E
SSB.CLK 25E
TRICK 26E
CAM/L IN 27E
To SYSTEM CONTROL 1E-27E
CAM.Y 1F
GND(CAM) 2F
CAM.C 3F
RD 4F
SD 5F
To CAMERA PROCESS 1F-5F
PB.FMA 1B
REC.FMA 2B
FSC 3B
A.OUT(R) 4B
A.IN(R) 5B
GND(5V2) 6B
A.IN(L) 7B
A.OUT(L) 8B
To AUDIO 1B-8B
5V1 1G
2G
To DC-D 1G-8
WHITE CLIP
PB LEVEL
EE LEVEL
DEV
Fo ADJ
REC APC FILTER
AFC/APC DET
21fsc OUT
CR DET FILTER
FROM FB COMB
COLOR KILLER DET
CROMA EM/DE1
VIDEO IN
EE LEVEL ADJ
VIDEO/Y OUT
MAIN DE-EMPH
PB LEVEL ADJ
HI8 DET OUT
HI8-DET TANK
HI8-DET FILTER
MAIN EMPH NF
MAIN EMPH OUT
REC LEVEL ADJ
FM MOD IN
PB FM IN
REC FM OUT
PB C IN
VCC
PB PULSE OUT
REC C OUT
AUTO BALANCE FILTER
DISCRI FILTER
VCO
TO X tal
FROM X tal
fsc OUT
C-GND
SERIAL DATA IN
SERIAL CLOCK IN
SW30 IN
TO FB COMB
CHIP SELECTOR
BURST SAC DET
CROMA EM/DE2
SQUELCH
YNR NL-DC
SYNC SEP OUT
6dB AMP FBC
FROM PAL JOG
CAM-Y-IN
TO PAL JOG
3V REG
Y+C/Y SELECT
CAM-C-IN
C OUT
TO CCD
AGC DET FILTER
FROM CCD
CCD ADJ FILTER
CCD IN
CCD OUT
CLAMP IN
NC ATT
Y-VCC
R/P VIDEO SW OUT
PICTURE CONT IN
MAIN DE-EMPH
EMPH FBC DE-EMPH APC
NC
AV
Y
C
(PB)
(PRE CONT)
AUD
R0397 75
1 2 3 4 5 6 7 8

※ONE VOLTAGE:PB OR REC MODE
TWO VOLTAGES:PB AND (REC) MODE
○—:WAVEFORMS No.

IC0201 HA119192AF

IC0204 UPC5027GS-104-E1
VIDEO AMP

JK0200
AV 20P

[TYPE 635/535]

R359
5.6K:TYPE 637/635
4.7K:TYPE 535

To
SYSTEM CONTROL
1E-27E

To
CAMERA PROCESS
1F-5F

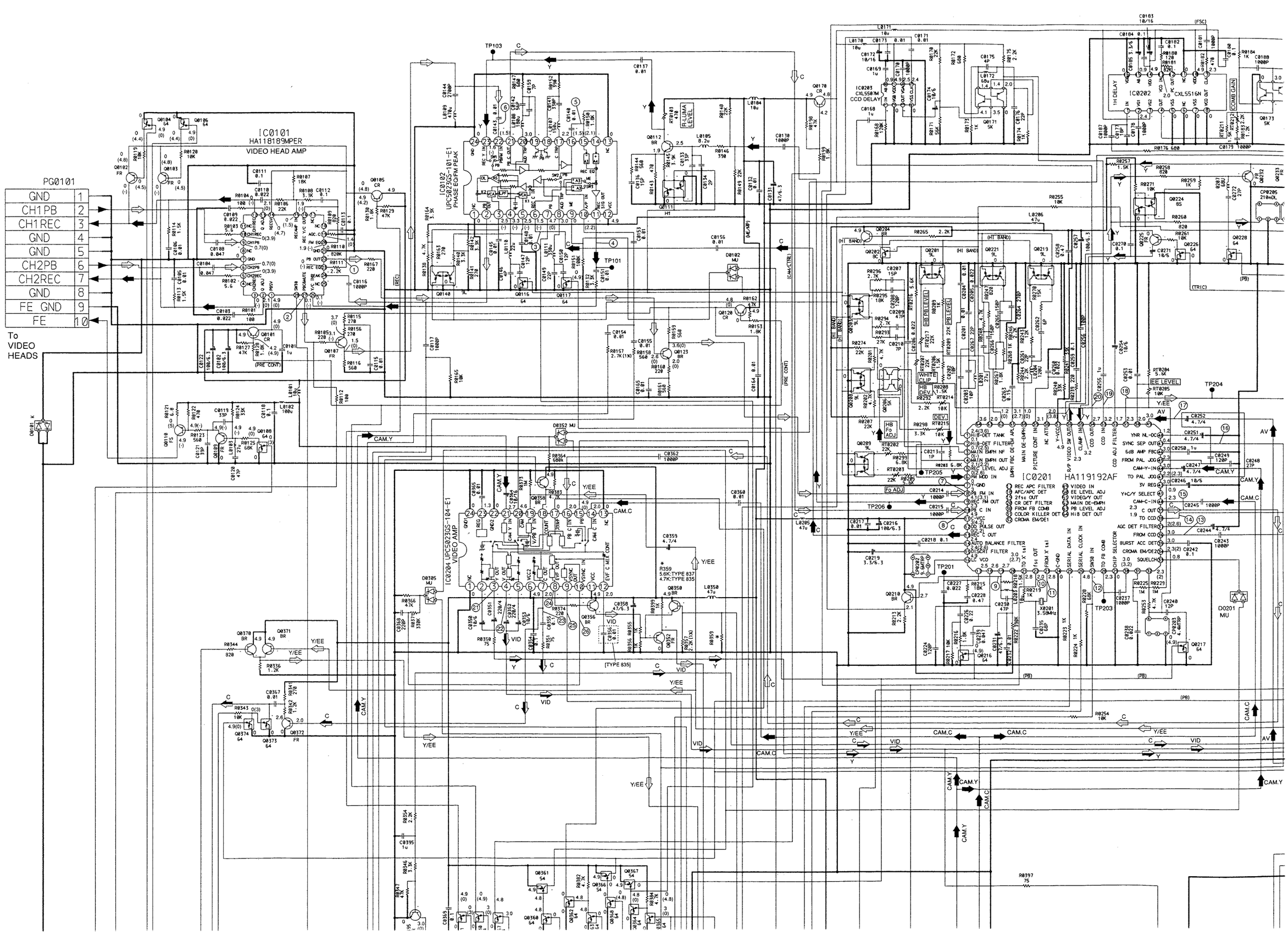
To
AUDIO
1B-8B

To
DC-DC CONVERTER
1G-8G

To
SYSTEM CONTROL
28E-32E

LUMINANCE/CHROMA[VCA]

LUMINANCE/CHROMA [VCA] SCHEMATIC DIAGRAM [TYPE 835,837]



CODE	PART NAME
BR	2SC4617
CR	2SB1219
FR	2SA1774RS
FS	2SA1037K
54	DTA114YE
64	DTC114YE
9L	XP1213
H1	IMH1
5K	XP4401
8C	DTC114YE
8S	XP4213
MU	MA132WK
K	DA221

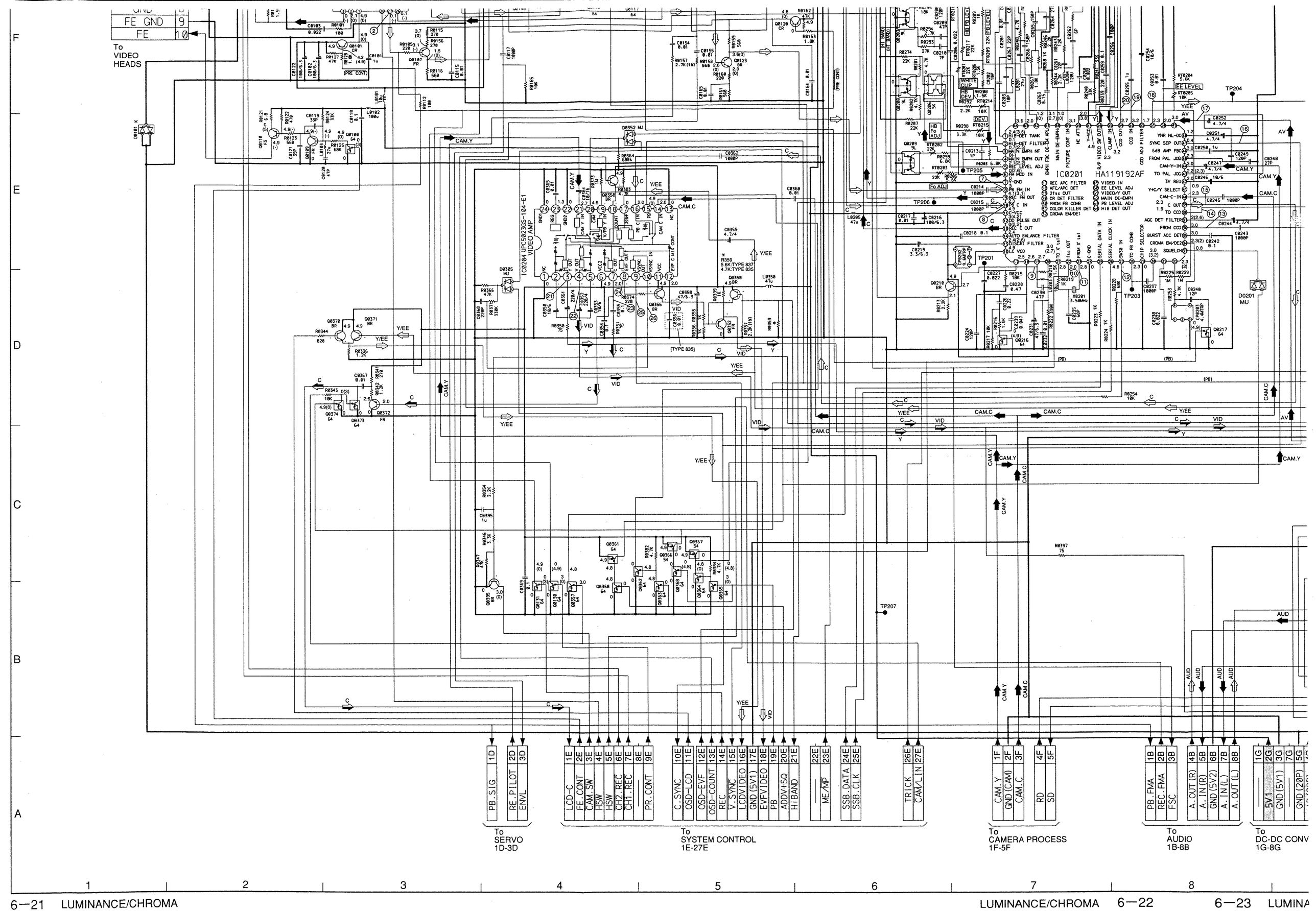
:REC SIGNAL

:PB SIGNAL

:REC/PB SIGNAL

※ONE VOLTAGE:PB OR REC MODE
TWO VOLTAGES:PB AND (REC) MODE

○— :WAVEFORMS No.


FE GND 9
FE 10
To VIDEO HEADS
IC0204 UPC5023GS-104-E1 VIDEO AMP
IC0201 HA119192AF
CAM.Y
CAM.C
Y/EE
VID
AV
AUD
TP201
TP203
TP204
TP205
TP206
TP207
D0201 MU
X0201 3.58MHz
CP0203 4.4MHz
[TYPE 835]
To SERVO 1D-3D
To SYSTEM CONTROL 1E-27E
To CAMERA PROCESS 1F-5F
To AUDIO 1B-8B
To DC-DC CONV 1G-8G

※ONE VOLTAGE:PB OR REC MODE
TWO VOLTAGES:PB AND (REC) MODE
○— :WAVEFORMS No.

IC0201 HA119192AF

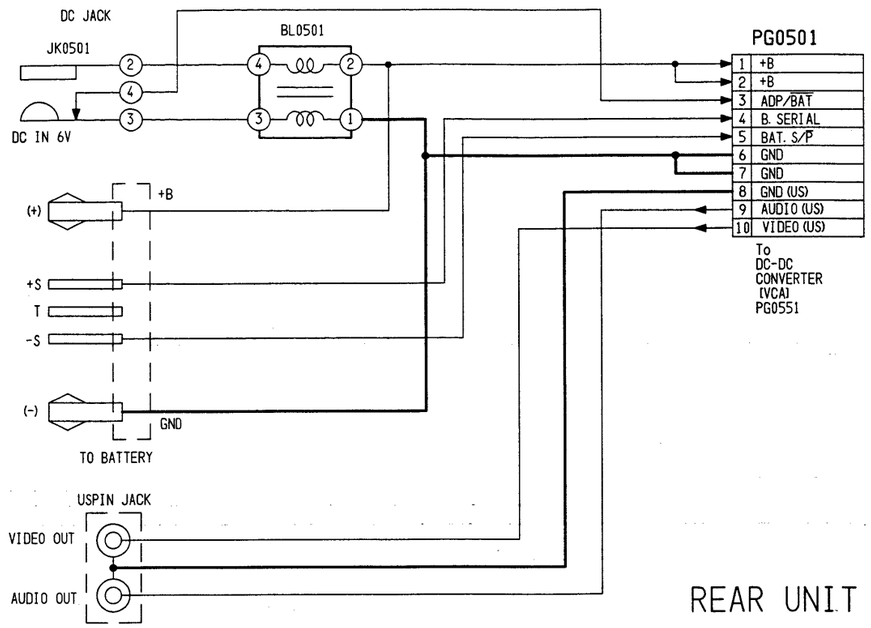
LUMINANCE/CHROMA[VCA]

To SYSTEM CONTROL 1E-27E
To CAMERA PROCESS 1F-5F
To AUDIO 1B-8B
To DC-DC CONVERTER 1G-8G
To SYSTEM CONTROL 28E-32E

WAVEFORMS[VIDEO]

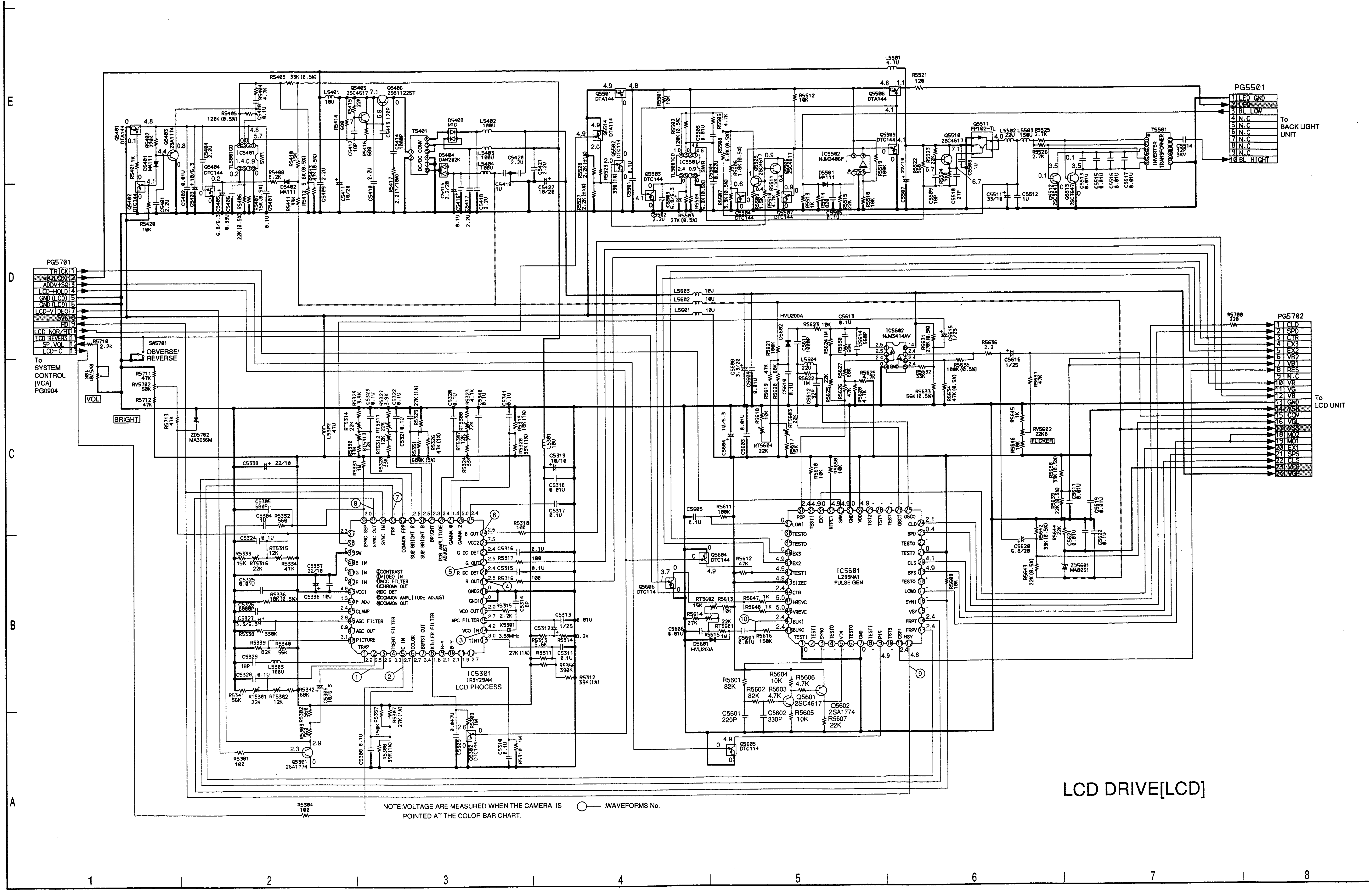
1-B IC101-22 300mVp-p 0.2V/5.0msec.cm PLAY	8-B IC201-10 310mVp-p 0.2V/5.0msec.cm PLAY	15-A IC201-39 610mVp-p 0.2V/20.0µsec.cm REC/PLAY	21-A IC204-3 2.0Vp-p 0.5V/20.0µsec.cm REC
2-B IC101-27 200mVp-p 0.1V/5.0msec.cm PLAY	9-A IC201-19 400mVp-p 0.2V/20.0µsec.cm REC/PLAY	16-A IC201-47 4.8Vp-p 1V/20.0µsec.cm REC/PLAY	21-B IC204-3 2.2Vp-p 0.5V/20.0µsec.cm PLAY
3-A IC102-6 380mVp-p 0.1V/20.0µsec.cm REC	10-A IC201-22 400mVp-p 0.2V/20.0µsec.cm REC/PLAY	17-A IC201-49 1.0Vp-p 0.2V/20.0µsec.cm REC	22-A IC204-4 2.0Vp-p 0.5V/20.0µsec.cm REC/PLAY
4-A IC102-11 520mVp-p 0.2V/20.0µsec.cm REC	11-A IC201-23 750mVp-p 0.2V/200nsec.cm REC/PLAY	18-A IC201-51 1.1Vp-p 0.2V/20.0µsec.cm REC	23-B IC204-7 1.2Vp-p 0.5V/20.0µsec.cm PLAY
5-A IC102-15 700mVp-p 0.2V/20.0µsec.cm REC	12-A IC201-27 3.0Vp-p 1V/5.0msec.cm REC/PLAY	18-B IC201-51 1.2Vp-p 0.2V/20.0µsec.cm PLAY	24-A IC204-8 2.1Vp-p 0.5V/20.0µsec.cm REC/PLAY
6-B IC102-22 340mVp-p 0.2V/5.0msec.cm PLAY	13-A IC201-36 110mVp-p 50mV/20.0µsec.cm REC/PLAY	19-A IC201-53 350mVp-p 0.1V/20.0µsec.cm REC/PLAY	25-A IC204-9 4.6Vp-p 1V/5.0msec.cm REC/PLAY
7-B IC201-8 560mVp-p 0.2V/5.0msec.cm PLAY	14-A IC201-38 200mVp-p 50mV/20.0µsec.cm REC/PLAY	20-A IC201-54 490mVp-p 0.1V/20.0µsec.cm REC/PLAY	26-A IC204-10 2.5Vp-p 1V/5.0msec.cm REC/PLAY

REAR UNIT

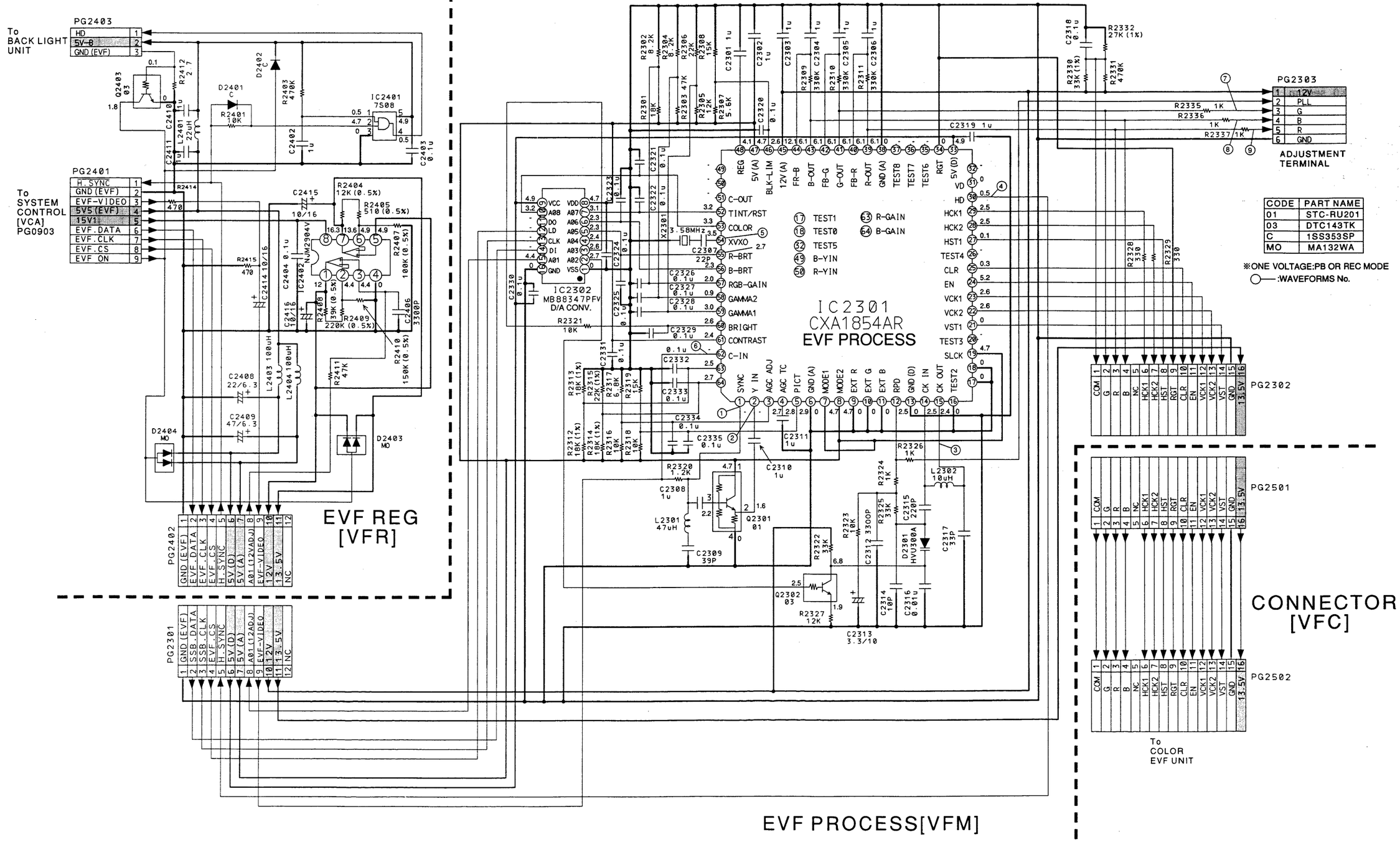


REAR UNIT

LCD DRIVE [LCD] SCHEMATIC DIAGRAM

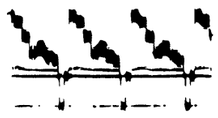
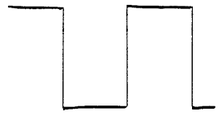
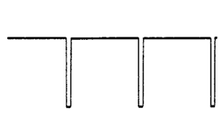
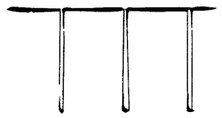

PG5701
TRICK 1
+B(LCD) 2
ADDV+SQ 3
LCD-HOLD 4
GND(LCD) 5
GND(LCD) 6
LCD-VIDEO 7
5V6 8
HD 9
LCD NOR/FH 10
LCD REVERS 11
SP.VOL 12
LCD-C 13
To SYSTEM CONTROL [VCA] PG0904
SW5701 OBVERSE/ REVERSE
VOL
BRIGHT
FLICKER
IC5401 TL5001CD
IC5501 TL5001CD
IC5502 NJM2406F
T5401 DC/DC CONV
T5501 INVERTER TRANSFORMER
PG5501
1 LED GND
2 LED
3 BL LOW
4 N.C
5 N.C
6 N.C
7 N.C
8 N.C
9 N.C
10 BL HIGHT
To BACK LIGHT UNIT
IC5301 IR3Y29AM LCD PROCESS
IC5601 LZ95NA1 PULSE GEN
IC5602 NJM3414AV
PG5702
1 CLD
2 SPD
3 CTR
4 EX3
5 EX2
6 VB2
7 VB1
8 RES
9 N.C
10 VR
11 VG
12 VB
13 GND
14 VSH
15 COM
16 VGL
17 VSS
18 MO2
19 MO1
20 EX1
21 SPS
22 CLS
23 VCC
24 VGH
To LCD UNIT
NOTE:VOLTAGE ARE MEASURED WHEN THE CAMERA IS POINTED AT THE COLOR BAR CHART.
○— :WAVEFORMS No.
LCD DRIVE[LCD]

EVF REG [VFR], EVF PROCESS [VFM], CONNECTOR [VFC] SCHEMATIC DIAGRAMS
[TYPE 637,837]

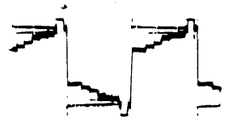
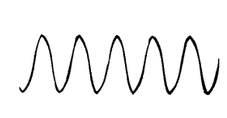
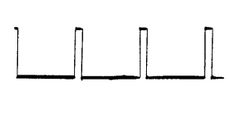
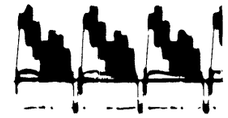


WAVEFORMS

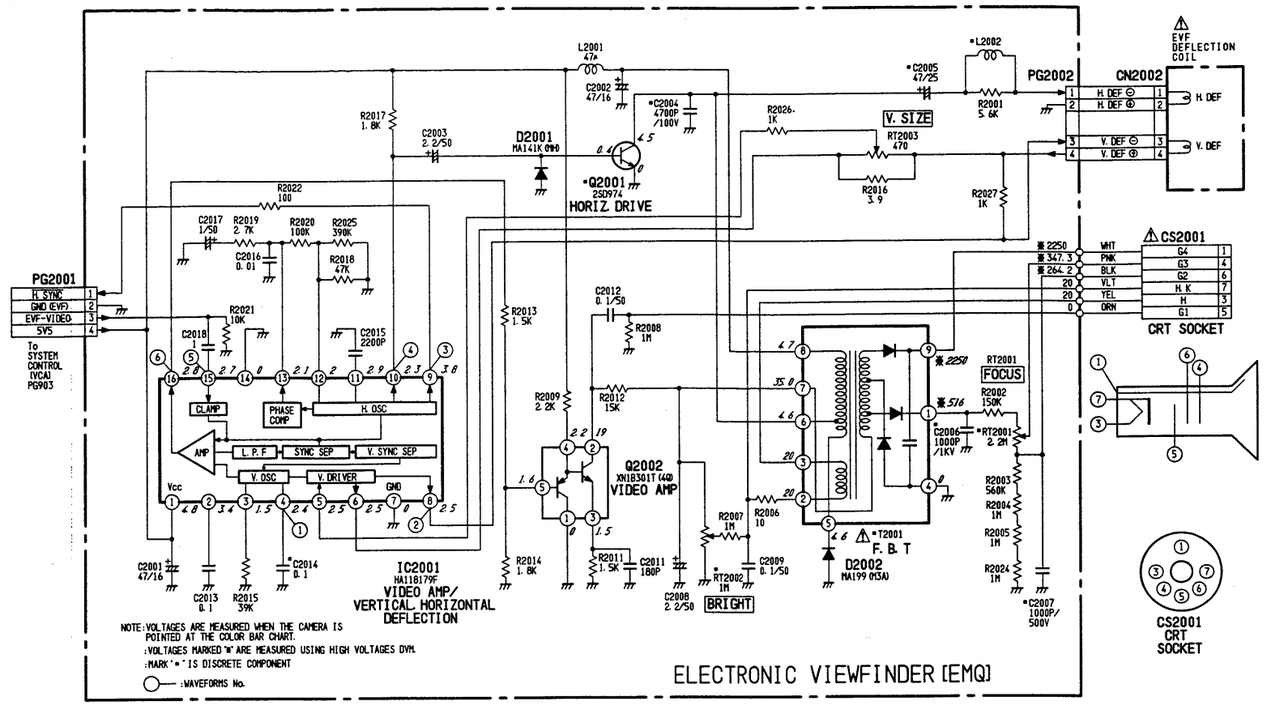
[LCD]

1-A IC5301-3 1.0Vp-p 0.2V/20.0sec.cm COLOR CHART	6-A IC5301-24 4.3Vp-p 1V/20.0 sec.cm COLOR CHART		
			
1-B IC5301-3 500mVp-p 0.1V/20.0 sec.cm VIDEO IN	7-A IC5301-33 5.0Vp-p 1V/20.0 sec.cm COLOR CHART		
			
2-A IC5301-5 1.1Vp-p 0.2V/20.0 sec.cm COLOR CHART	8-A IC5301-35 4.9Vp-p 1V/20.0 sec.cm COLOR CHART		
			
3-A IC5301-14 400mVp-p 0.1V/200nsec.cm COLOR CHART	9-A IC5601-12 5.0Vp-p 1V/20.0 sec.cm COLOR CHART		
			
4-A IC5301-19 4.3Vp-p 1V/20.0 sec.cm COLOR CHART	10-A IC5601-47 4.3Vp-p 1V/20.0 sec.cm COLOR CHART		
5-A IC5301-21 4.3Vp-p 1V/20.0 sec.cm COLOR CHART			

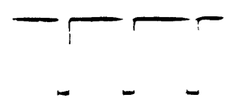
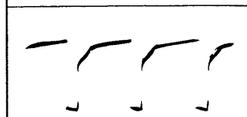
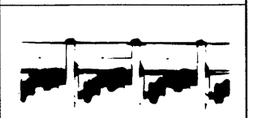
[VFM]

1-A IC2301-1 420mVp-p 0.1V/20.0 sec.cm COLOR CHART	7-A PG2303-3 9.4Vp-p 2V/20.0 sec.cm COLOR CHART	
		
2-A IC2301-2 420mVp-p 0.1V/20.0 sec.cm COLOR CHART	8-A PG2303-4 9.4Vp-p 2V/20.0 sec.cm COLOR CHART	
3-A IC2301-15 5.6Vp-p 2V/50.0nsec.cm COLOR CHART	9-A PG2303-5 9.4Vp-p 2V/20.0 sec.cm COLOR CHART	
		
4-A IC2301-30 5.0Vp-p 2V/20.0 sec.cm COLOR CHART		
		
5-A IC2301-54 400mVp-p 0.1V/200nsec.cm COLOR CHART		
6-A IC2301-62 500mVp-p 0.1V/20.0 sec.cm COLOR CHART		
		

ELECTRONIC VIEWFINDER [EMQ] SCHEMATIC DIAGRAM [TYPE 535,635,835]

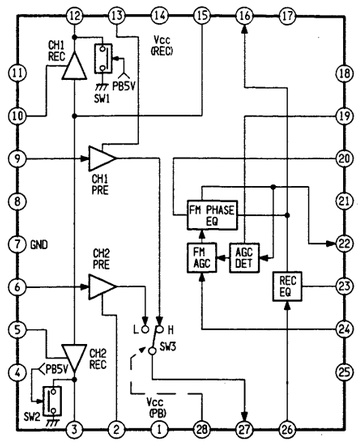


WAVEFORMS[EMQ]

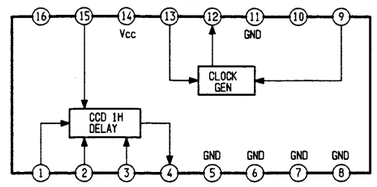
1-A IC2001-4 870mVp-p 0.2V/5.0msec.cm COLOR CHART	2-A IC2001-8 2.2Vp-p 0.5V/5.0msec.cm COLOR CHART	3-A IC2001-9 1.9Vp-p 0.5V/20.0 sec.cm COLOR CHART
		
4-A IC2001-10 1.7Vp-p 0.5V/20.0 sec.cm COLOR CHART	5-A IC2001-15 1.0Vp-p 0.2V/20.0 sec.cm COLOR CHART	6-A IC2001-16 2.9Vp-p 1V/20.0 sec.cm COLOR CHART
		

IC BLOCK DIAGRAMS

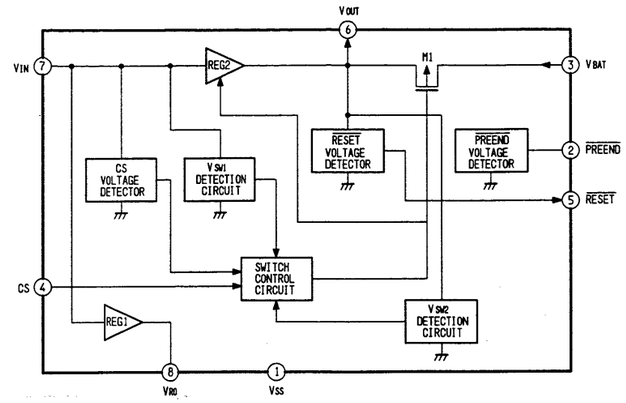
IC101
HA118189MPER
VIDEO HEAD SW



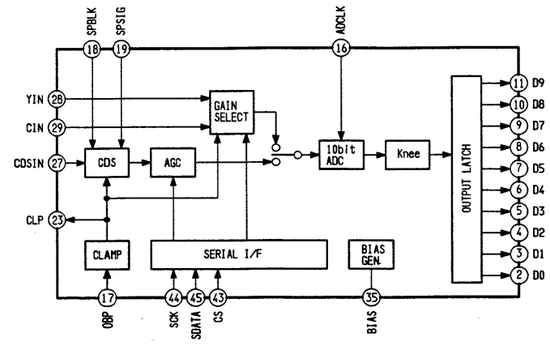
IC202
CXL5516N
1H DELAY



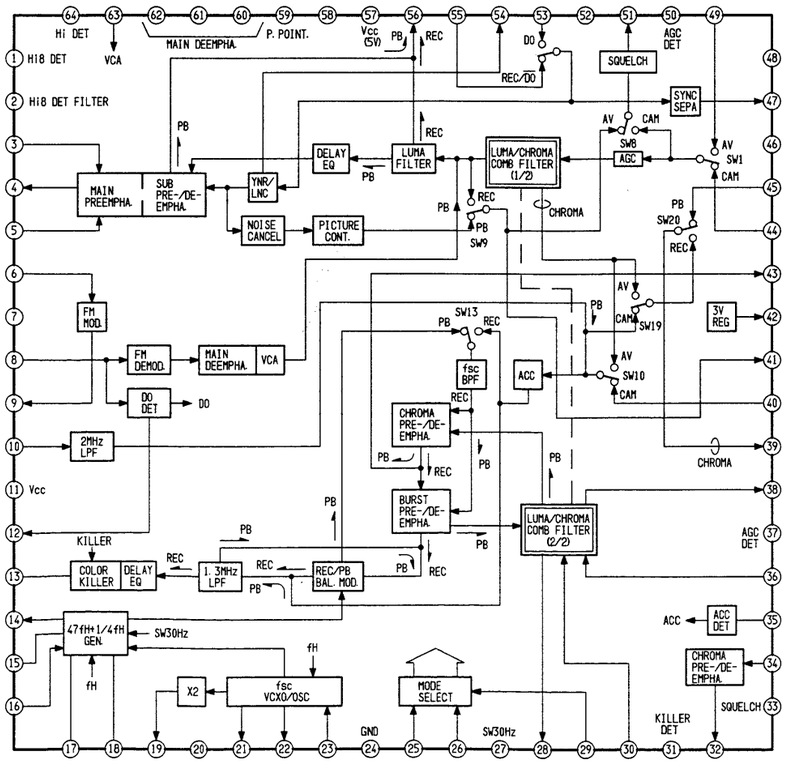
IC902
S84233FS
BACK-UP DET



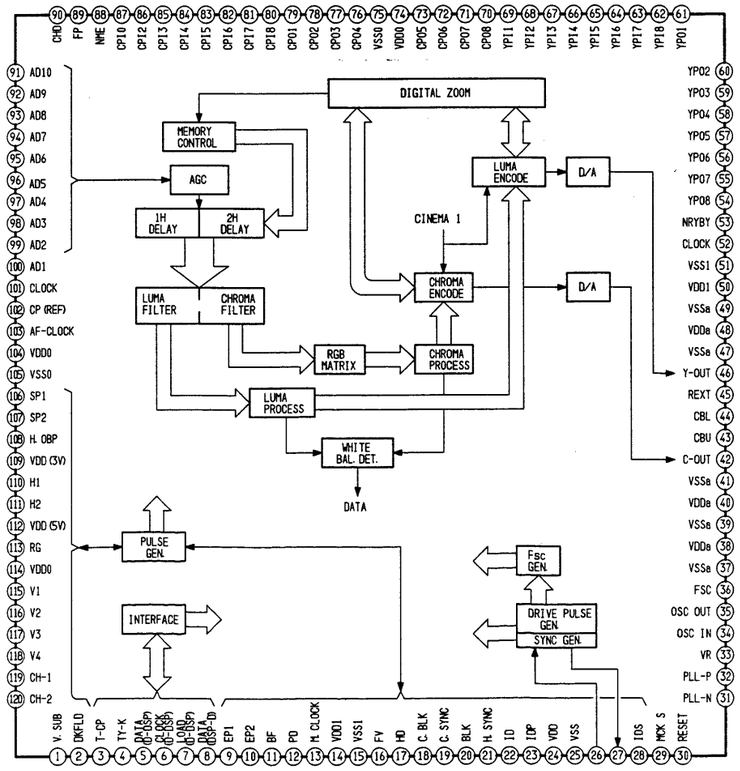
IC1101
HD49322F
CDS/DAC



IC201
HA118192AF
LUMA/CHROMA PROCESS

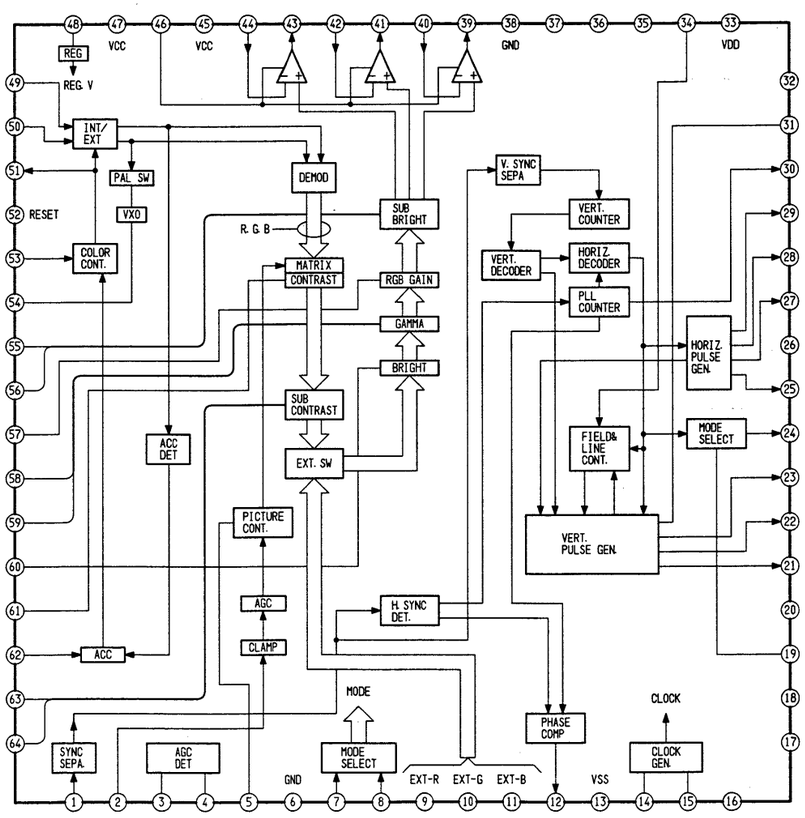


IC1102
MG51CS035TE
DIGITAL PROCESS (DSP)

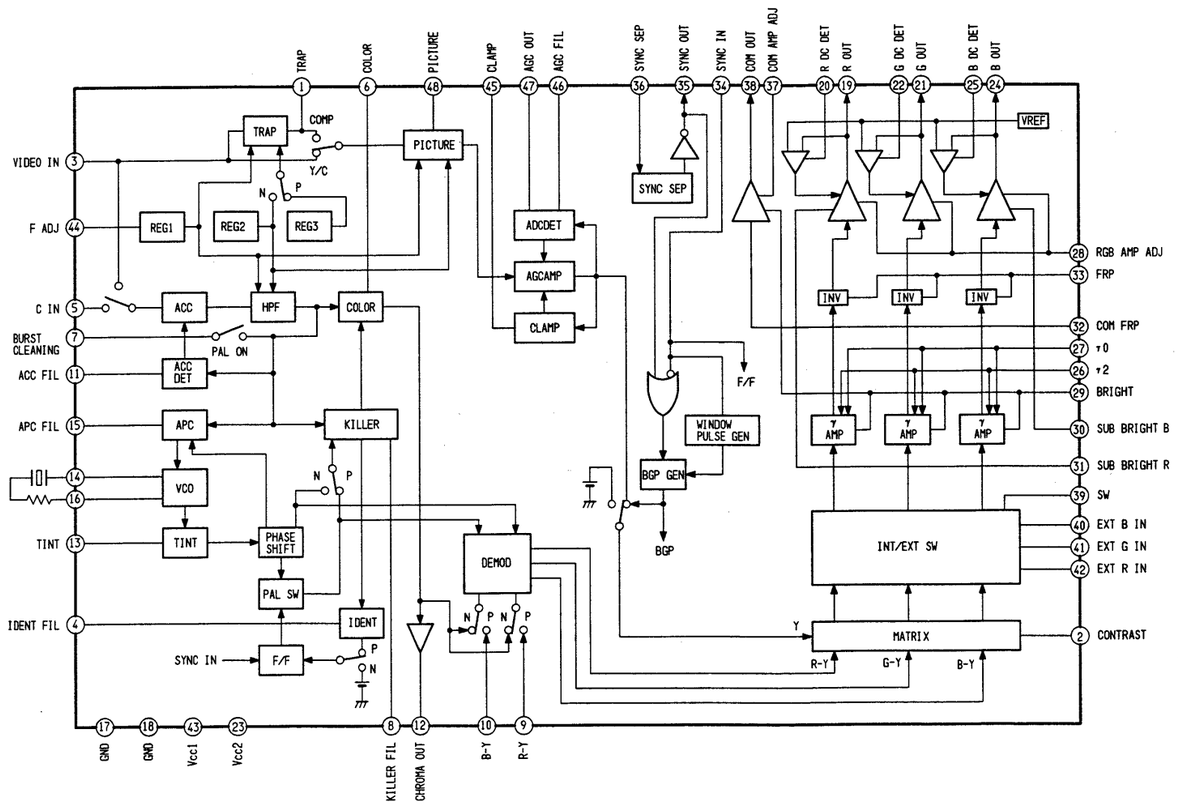


IC BLOCK DIAGRAMS

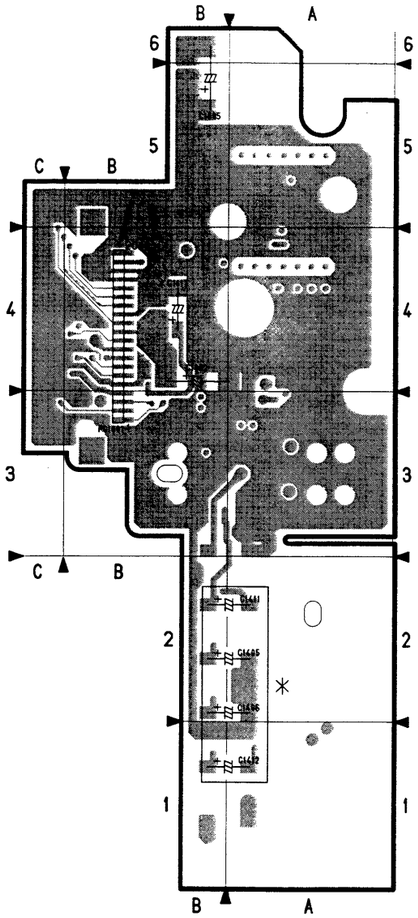
IC2301
CXA1854AR
EVF PROCESS



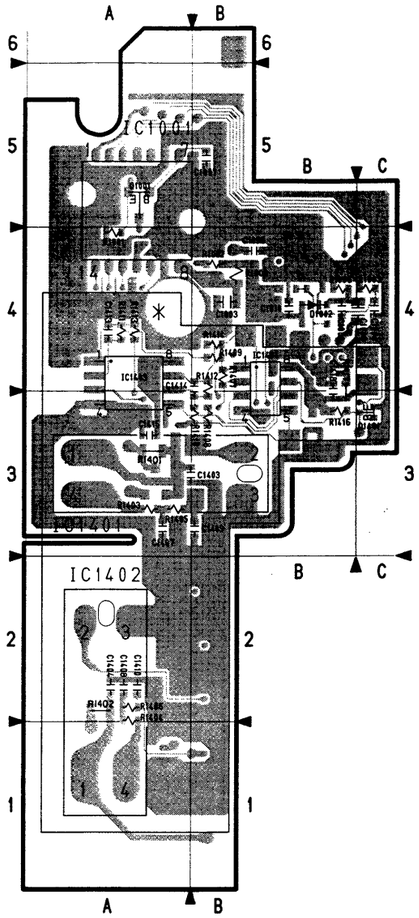
IC5301
IR3Y29AM
LCD PROCESS



SE,EMQ,HTS9551C CIRCUIT BOARDS



SE(SENSOR/GYRO)-SIDE A-
[PATTERN No.JA1381-5]



SE(SENSOR/GYRO)-SIDE B-
[PATTERN No.JA1381-5]

SE [SENSOR/GYRO] – SIDE A –
DIFFERENCE TABLE

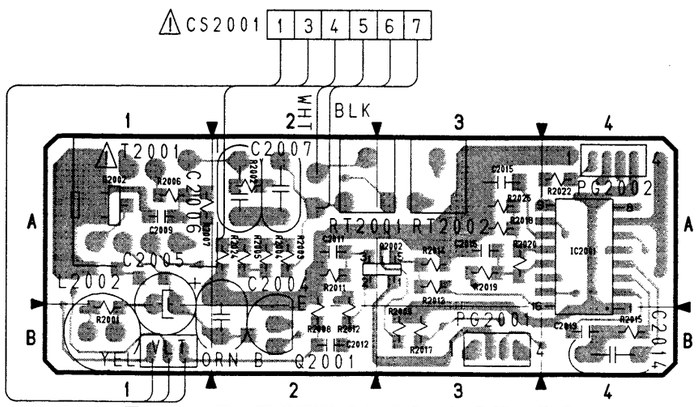
NOTE: This table listes the different components marked with asterisks (*) in the circuit board diagrams.

SYMBOL No.	TYPE535	TYPE 635/637/835/837
C1405	×	○
C1406	×	○
C1411	×	○
C1412	×	○
C1417	×	○

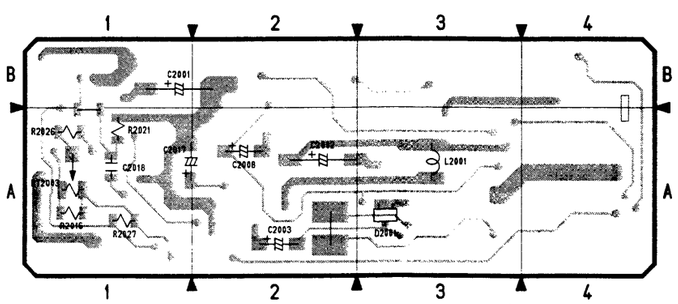
SE [SENSOR/GYRO] – SIDE B –
DIFFERENCE TABLE

NOTE: This table listes the different components marked with asterisks (*) in the circuit board diagrams.

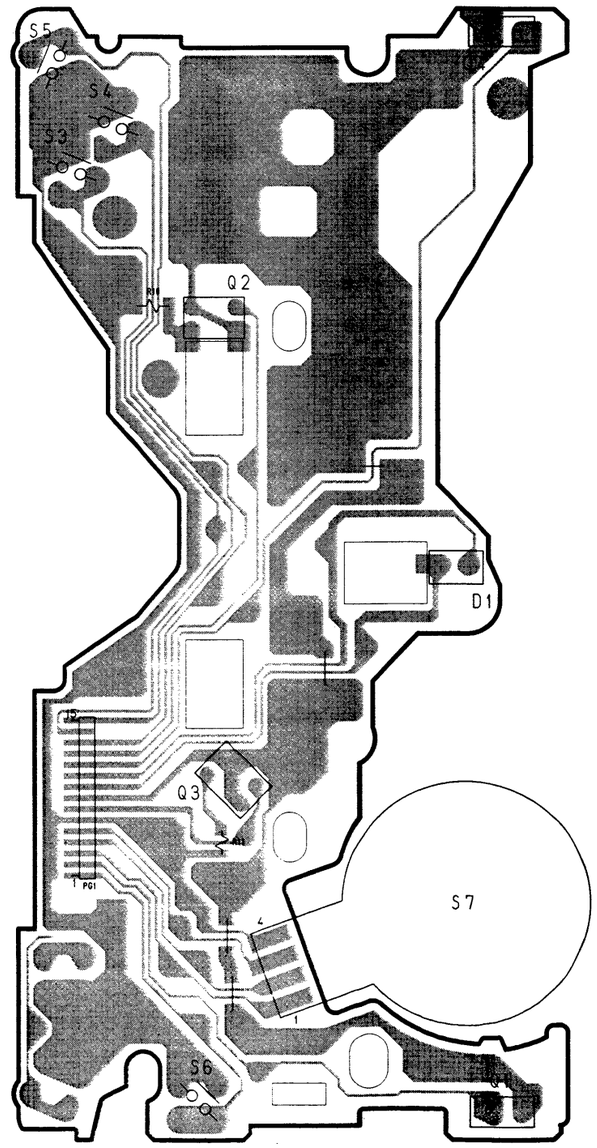
SYMBOL No.	TYPE535	TYPE 635/637/835/837
C1403	×	○
C1404	×	○
C1407	×	○
C1408	×	○
C1409	×	○
C1410	×	○
C1413	×	○
C1414	×	○
C1415	×	○
C1418	×	○
IC1401	×	○
IC1402	×	○
IC1403	×	○
IC1404	×	○
Q1401	×	○
R1401	×	JUMPER
R1402	×	JUMPER
R1403	×	○
R1404	×	○
R1405	×	○
R1406	×	○
R1407	×	○
R1408	×	○
R1409	×	○
R1410	×	○
R1411	×	○
R1412	×	○
R1413	×	○
R1414	×	○
R1416	×	○
R1417	×	JUMPER



EMQ(ELECTRONIC VIEWFINDER)
-SIDE A-
[PATTERN No.152035-2]

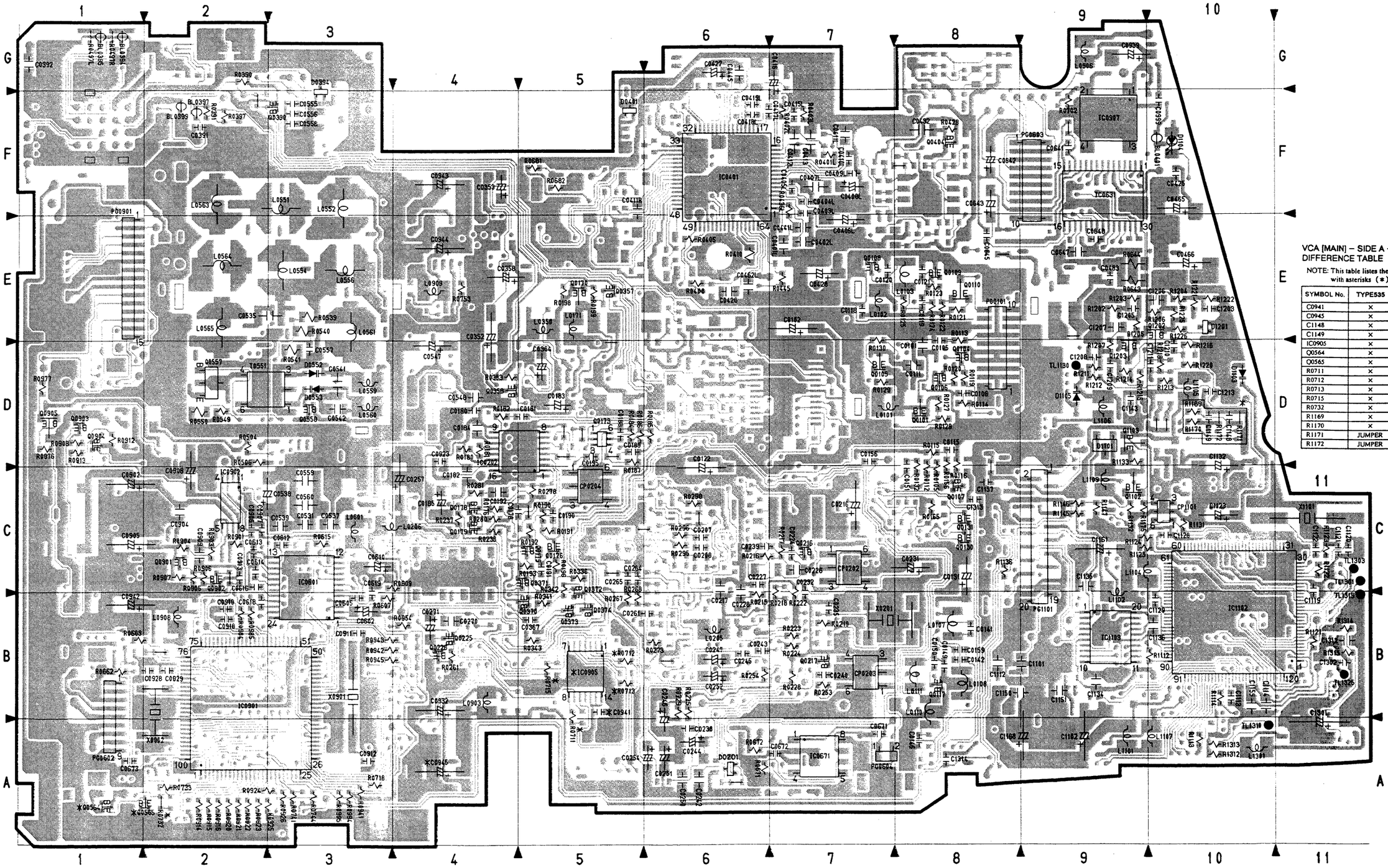


EMQ(ELECTRONIC VIEWFINDER)
-SIDE B-



TROUBLE SENSOR(HTS9551C)
[PATTERN No.155190-2]

VCA CIRCUIT BOARD -SIDE･A-
[TYPE 535,635,637]



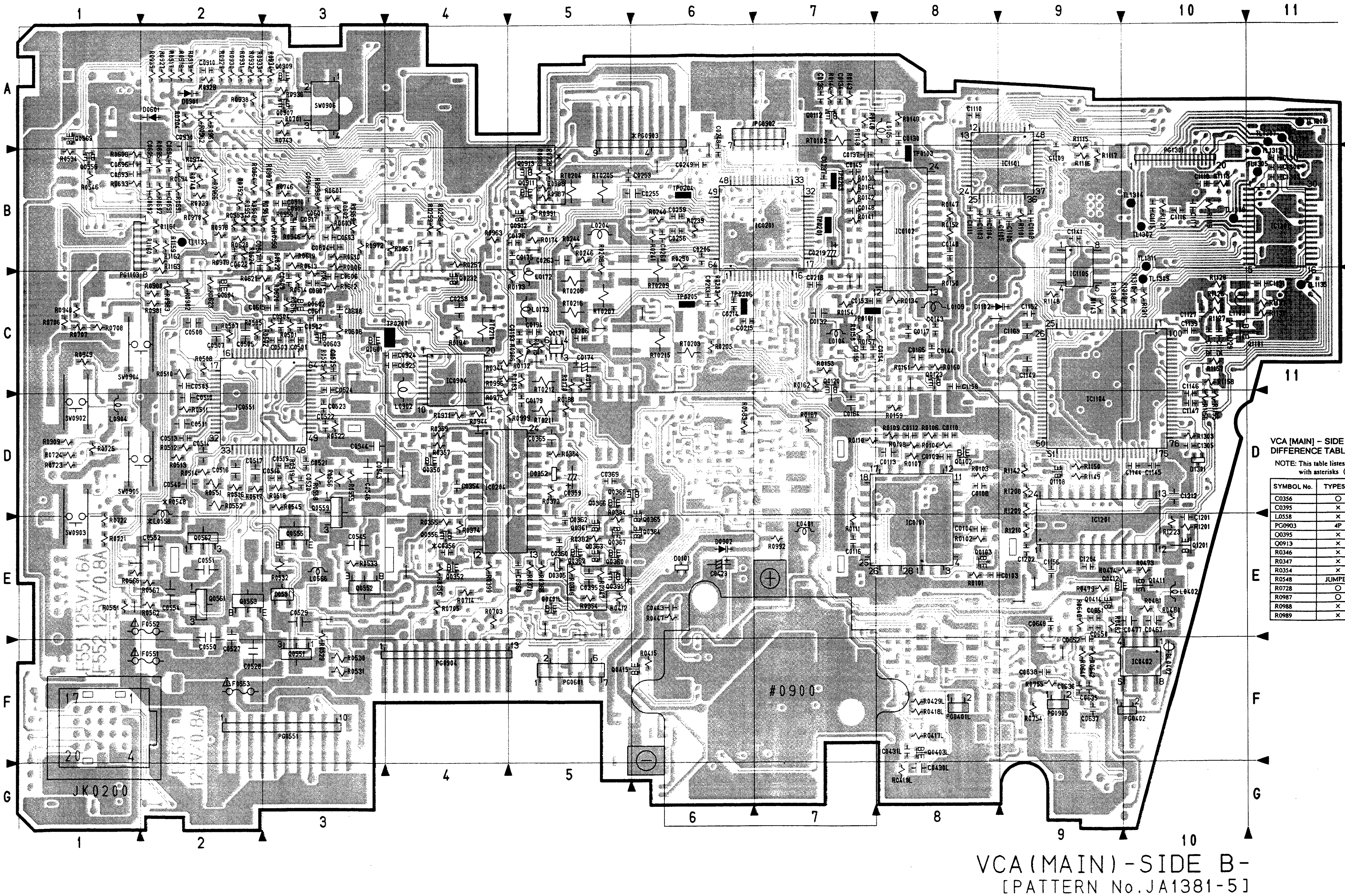
VCA [MAIN] – SIDE A –
DIFFERENCE TABLE

NOTE: This table listes the different components marked with asterisks (*) in the circuit board diagrams.

SYMBOL No.	TYPE535	TYPE635	TYPE637
C0941	×	×	○
C0945	×	×	○
C1148	×	○	○
C1149	×	○	○
IC0905	×	×	○
Q0564	×	×	○
Q0565	×	×	○
R0711	×	×	○
R0712	×	×	○
R0713	×	×	○
R0715	×	×	○
R0732	×	×	JUMPER
R1169	×	○	○
R1170	×	○	○
R1171	JUMPER	×	×
R1172	JUMPER	×	×

VCA(MAIN)-SIDE A-
[PATTERN No.JA1381-5]

VCA CIRCUIT BOARD -SIDE·B-
[TYPE 535,635,637]



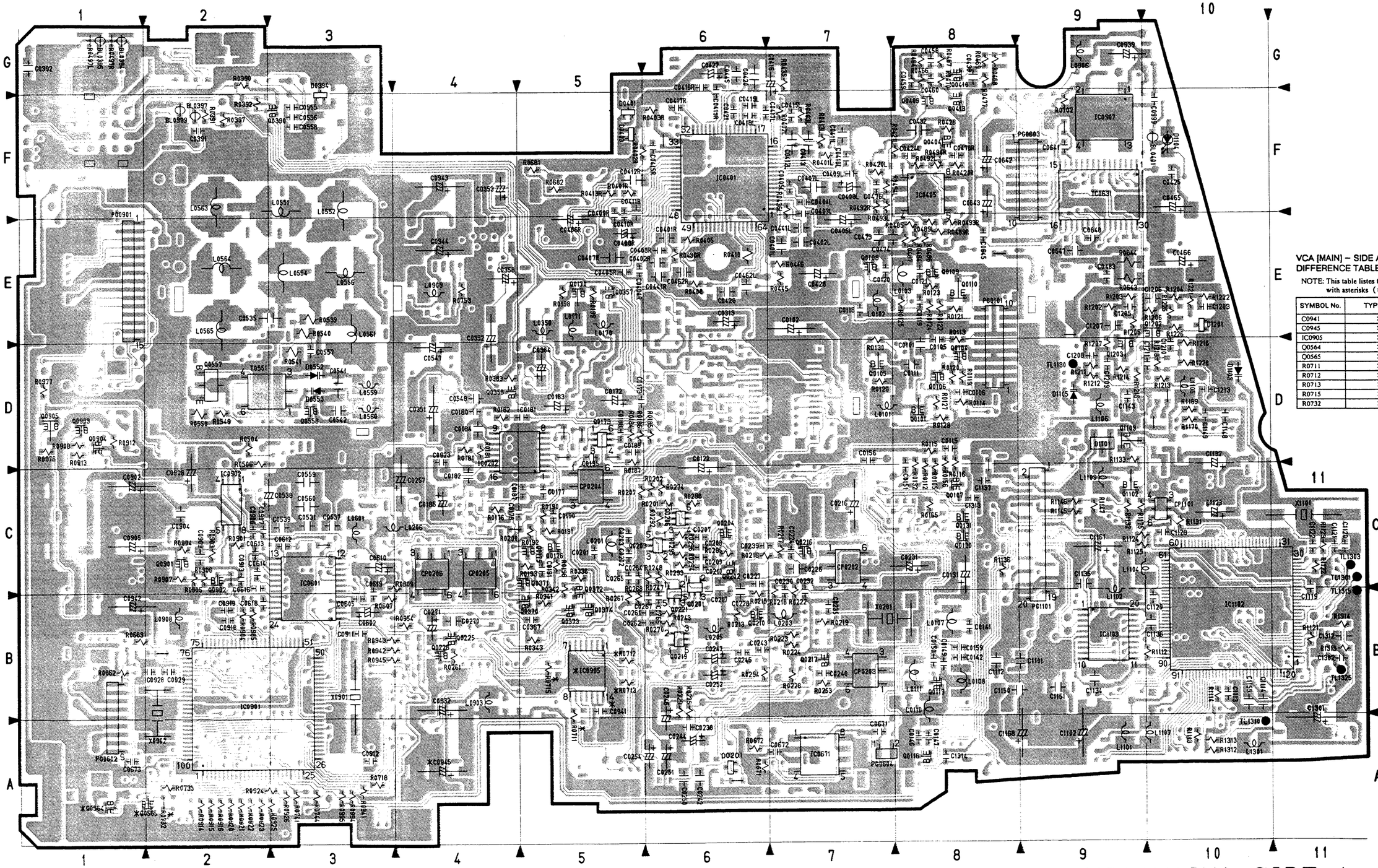
VCA [MAIN] – SIDE B – DIFFERENCE TABLE

NOTE: This table listes the different components marked with asterisks (*) in the circuit board diagrams.

SYMBOL No.	TYPE535	TYPE635	TYPE637
C0356	○	○	×
C0395	×	○	○
L0558	×	×	○
PG0903	4P	4P	9P
Q0395	×	○	○
Q0913	×	×	○
R0346	×	○	○
R0347	×	○	○
R0354	×	○	○
R0548	JUMPER	JUMPER	×
R0728	○	○	×
R0987	○	○	×
R0988	×	×	○
R0989	×	×	○

VCA(MAIN)-SIDE B-
[PATTERN No.JA1381-5]

VCA CIRCUIT BOARD -SIDE･A-
[TYPE 835,837]



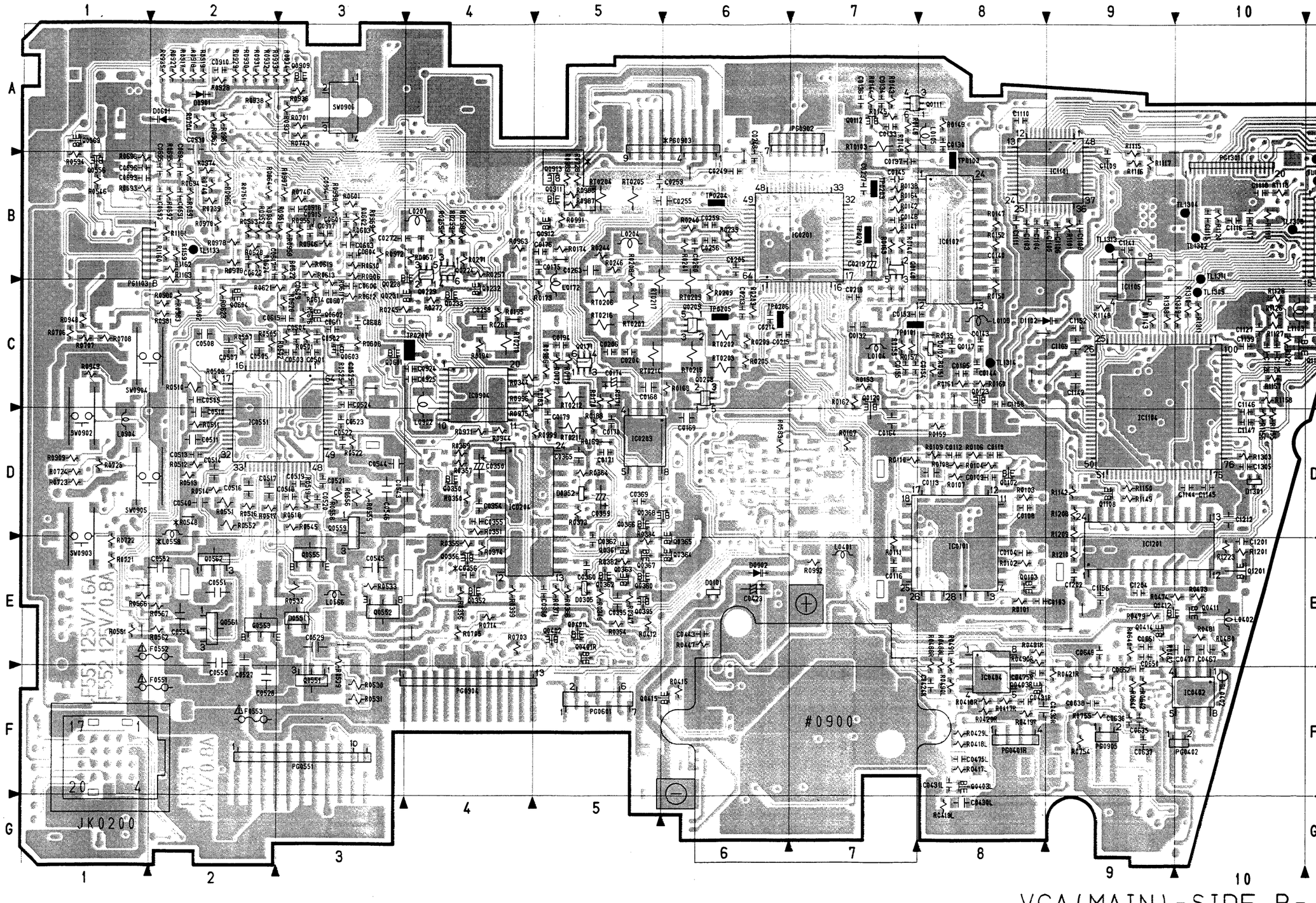
VCA [MAIN] – SIDE A –
DIFFERENCE TABLE

NOTE: This table listes the different components marked with asterisks (＊) in the circuit board diagrams.

SYMBOL No.	TYPE835	TYPE837
C0941	×	○
C0945	×	○
IC0905	×	○
Q0564	×	○
Q0565	×	○
R0711	×	○
R0712	×	○
R0713	×	○
R0715	×	○
R0732	×	JUMPER

VCA(MAIN)-SIDE A-
[PATTERN No.JA1381-5]

VCA CIRCUIT BOARD -SIDE·B-
[TYPE 835,837]



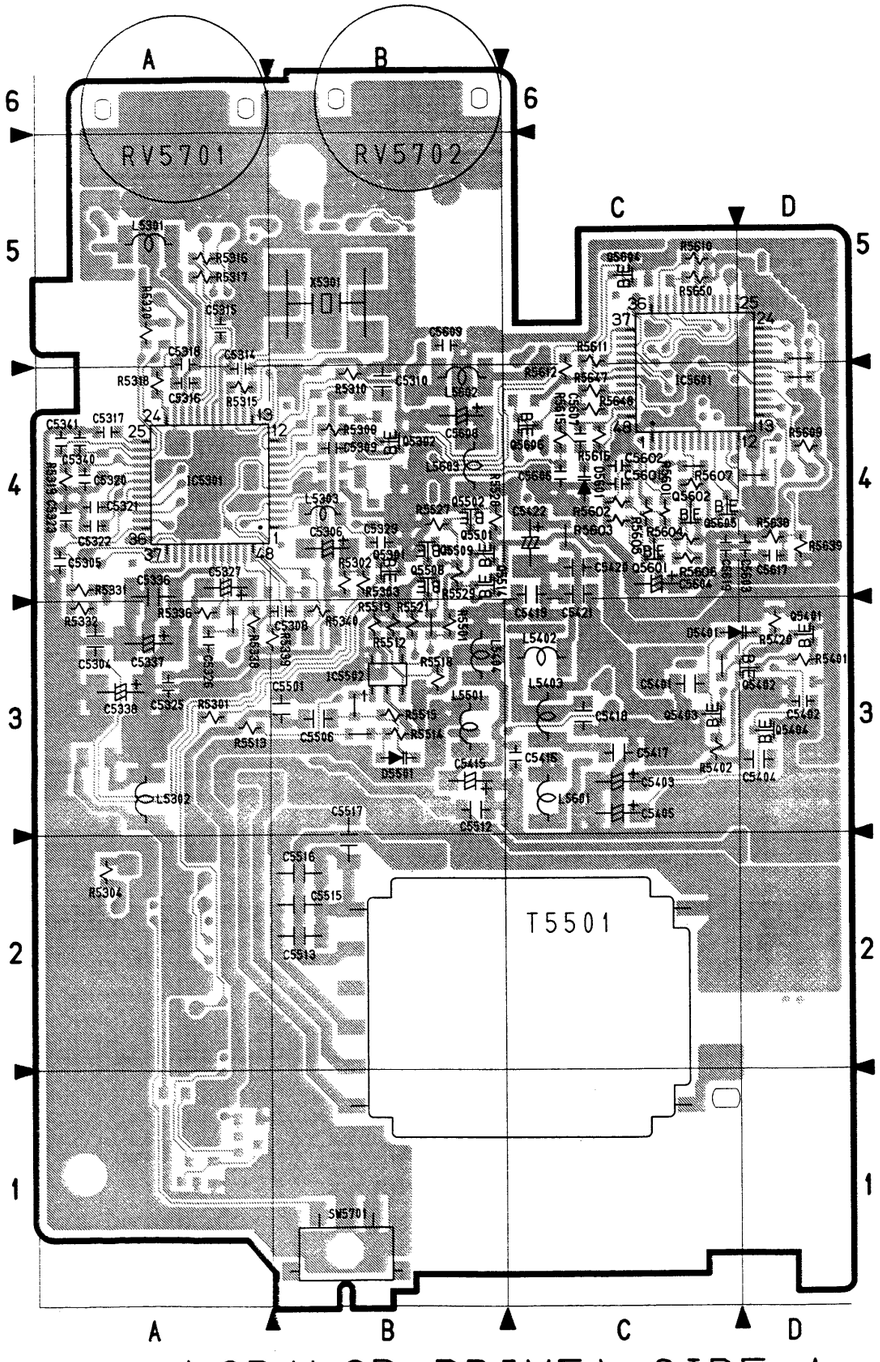
VCA(MAIN) - SIDE B -
DIFFERENCE TABLE

NOTE: This table listes the different components marked with asterisks (*) in the circuit board diagrams.

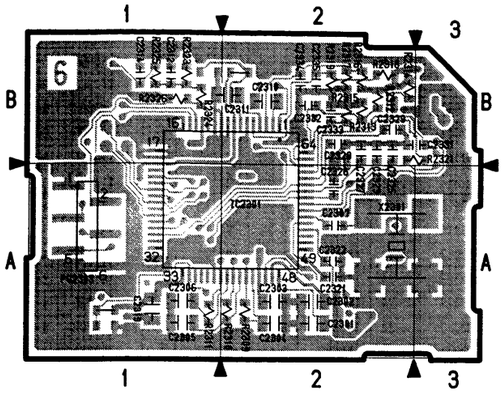
SYMBOL No.	TYPE835	TYPE837
C0356	○	×
L0558	×	○
PG0903	4P	9P
Q0913	×	○
R0548	JUMPER	×
R0728	○	×
R0987	○	×
R0988	×	○
R0989	×	○

VCA(MAIN) - SIDE B -
[PATTERN No.JA1381-5]

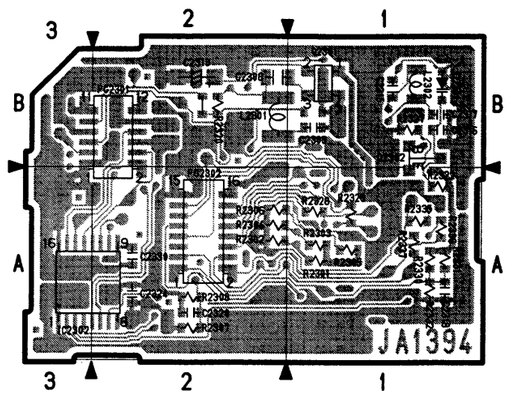
LCD CIRCUIT BOARD



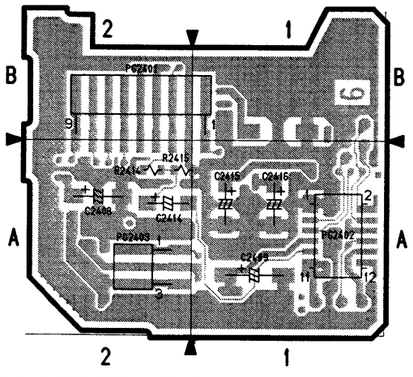
VFR,VFM,VFC CIRCUIT BOARDS
[TYPE 637,837]



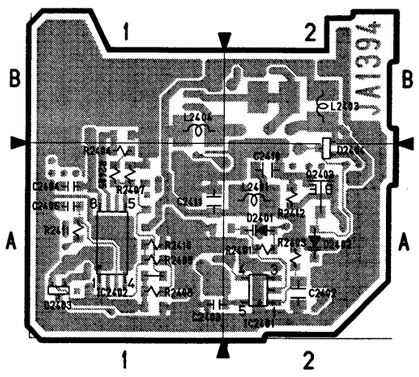
VFM(EVF PROCESS)-SIDE A-



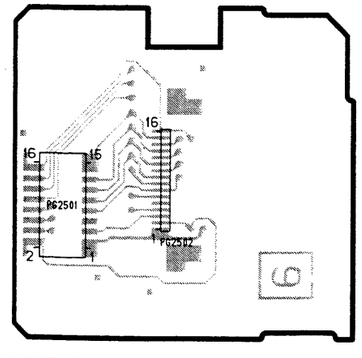
VFM(EVF PROCESS)-SIDE B-
[PATTERN No.JA1394-6]



VFR(EVF REG)-SIDE A-



VFR(EVF REG)-SIDE B-
[PATTERN No.JA1394-6]



VFC(CONNECTOR)
[PATTERN No.JA1394-6]

IDENTIFICATION OF PARTS LOCATION

SE [SENSOR/GYRO]

Symbol No.	Parts Location
C	
C1002	A-4B
C1003	B-4B
C1004	B-4C
C1005	A-5B
C1006	B-4B
C1007	B-5B
C1008	B-4B
C1009	B-4C
C1010	B-4B
C1403	B-3A
C1404	B-2A
C1405	A-2A
C1406	A-2A
C1407	B-3A
C1408	B-2A
C1409	B-3B
C1410	B-2A
C1411	A-2A
C1412	A-1A
C1413	B-4A
C1414	B-4B
C1415	B-3A
C1417	A-4B
C1418	B-3B
D	
D1002	B-4B
IC	
IC1001	B-5A
IC1401	B-3A
IC1402	B-2A
IC1403	B-4A
IC1404	B-4B
PG	
PG1001	A-4B
Q	
Q1001	B-5A
Q1401	B-3C
R	
R1001	B-4A
R1002	B-4B
R1003	B-4C
R1006	B-4B
R1009	B-4B
R1401	B-3A
R1402	B-2A
R1403	B-3A
R1404	B-2A
R1405	B-3A
R1406	B-2A
R1407	B-4B
R1408	B-3B
R1409	B-4B
R1410	B-3B
R1411	B-4A
R1412	B-4B
R1413	B-4A
R1414	B-4B
R1416	B-3B
R1417	B-3B

EMQ [ELECTRONIC VIEWFINDER]

Symbol No.	Parts Location
C	
C2001	B-1B
C2002	B-2A
C2003	B-2A
C2004	A-2B
C2005	A-1A
C2006	A-2A
C2007	A-2A
C2008	B-2A
C2009	A-1A
C2011	A-2A
C2012	A-2B
C2013	A-4B
C2014	A-4B
C2015	A-3A
C2016	A-3A
C2017	B-1A
C2018	B-1A
D	
D2001	B-3A
D2002	A-1A
IC	
IC2001	A-4A
L	
L2001	B-3A
L2002	A-1B
PG	
PG2001	A-3B
PG2002	A-4A
Q	
Q2001	A-2B
Q2002	A-3A
R	
R2001	A-1B
R2002	A-2A
R2003	A-2A
R2004	A-2A
R2005	A-2A
R2006	A-1A
R2007	A-1A
R2008	A-2B
R2009	A-3B
R2011	A-2A
R2012	A-2B
R2013	A-3A
R2014	A-3A
R2015	A-4B
R2016	B-1A
R2017	A-3B
R2018	A-3A
R2019	A-3A
R2020	A-3A
R2021	B-1A
R2022	A-4A
R2024	A-2A
R2025	A-3A
R2026	B-1A
R2027	B-1A
RT	
RT2001	A-2A
RT2002	A-3A
RT2003	B-1A
T	
T2001	A-1A

VCA [MAIN] (TYPE 535, 635, 637)

Symbol No.	Parts Location
BL	
BL0394	A-1G
BL0395	A-1G
BL0397	A-2F
BL0399	A-2F
BL0401	A-10F
BL0402	B-10F
C	
C0101	A-8D
C0102	A-7E
C0103	B-8E
C0104	B-8E
C0105	A-8D
C0106	A-8D
C0108	B-8D
C0109	B-8D
C0110	B-8D
C0111	A-8D
C0112	B-8D
C0113	B-8D
C0115	A-8D
C0116	B-7E
C0117	B-8C
C0118	A-7E
C0119	A-8E
C0120	A-7E
C0121	A-8E
C0122	A-6C
C0130	B-8A
C0131	A-8C
C0132	B-7C
C0134	B-7A
C0136	B-7A
C0137	B-7B
C0140	B-8B
C0141	A-8B
C0142	A-8B
C0143	B-8C
C0144	B-8C
C0145	B-7B
C0146	A-8A
C0148	B-7B
C0149	A-8B
C0150	A-8B
C0151	A-8C
C0153	B-7C
C0154	B-7C
C0155	B-7C
C0156	A-7D
C0159	A-8B
C0164	B-7D
C0165	B-8C
C0174	B-5C
C0175	B-5B
C0176	B-5B
C0178	A-5C
C0179	B-5D
C0180	A-4D
C0181	A-5D
C0182	A-4C
C0183	A-5D
C0184	A-4D
C0185	A-4C
C0188	A-5D
C0189	A-5D
C0190	A-5C
C0191	A-5C
C0192	A-4C
C0193	B-5C
C0194	B-5C
C0195	A-5D
C0205	B-6B
C0206	B-5C
C0207	A-6C
C0208	A-6C
C0213	B-6C
C0214	B-6C
C0215	B-6C
C0216	A-7C
C0217	A-6C
C0218	B-7C
C0219	B-7B
C0224	A-7C
C0226	A-7C
C0227	A-6C
C0228	A-6B
C0231	A-8C
C0232	A-7B
C0235	A-7B
C0237	B-7B
C0238	A-6A
C0239	A-6C
C0240	A-7B
C0242	A-6A
C0243	A-6B
C0244	A-6A
C0245	A-6B
C0246	A-6A
C0247	A-6B
C0248	B-6B
C0249	B-6B
C0250	A-6A
C0251	A-6A
C0252	A-6B
C0253	B-5B
C0254	A-6A
C0255	B-6B
C0256	B-6B
C0257	A-4C
C0258	B-4C
C0259	B-6B
C0260	B-6B
C0261	A-6B
C0263	B-5B
C0264	A-5C
C0265	A-5C
C0270	A-4B
C0271	A-4B
C0352	A-4E
C0353	A-4F
C0354	B-4D
C0356	B-4E
C0358	A-4E
C0359	B-5D
C0360	B-5E
C0362	B-5E
C0364	A-5D
C0365	B-5D
C0367	A-5B
C0368	B-5E
C0369	B-5D
C0391	A-2F
C0392	A-1G
C0395	B-5E
C0401L	A-7E
C0402L	A-7E
C0403L	A-7F
C0404L	A-7F
C0405L	A-7F
C0406L	A-7E
C0407L	A-7F
C0408L	A-7F
C0409L	A-7F
C0410L	A-7F
C0411L	A-7F
C0411R	A-5F
C0412L	A-7F
C0413	A-7F
C0415L	A-7F
C0416	A-7G
C0417L	A-6F
C0418L	A-6F
C0419L	A-6F
C0422	A-6G
C0423	B-6E
C0425	A-10F
C0426	A-6E
C0428	A-7E
C0430L	B-8G
C0431L	B-8F
C0432	A-8F
C0441L	A-7E
C0443	B-6E
C0445	A-6G
C0462L	A-6E
C0465	A-10F
C0466	A-10E
C0467	B-10E
C0477	B-10E
C0483	A-9E
C0501	B-3C
C0502	B-3C
C0503	B-3C
C0504	B-3C
C0505	B-2C
C0507	B-2C
C0508	B-2C
C0509	B-2C
C0510	B-2D
C0511	B-2D
C0513	B-2D
C0514	B-2D
C0516	B-2D
C0517	B-2D
C0518	B-3D
C0519	B-3D
C0520	B-3D
C0521	B-3D
C0522	B-3D
C0523	B-3D
C0524	B-3C
C0525	B-3C
C0527	B-2E
C0528	B-2F
C0529	B-3E
C0531	A-3C
C0535	A-3E
C0537	A-3C
C0538	A-2C
C0539	A-3C
C0540	B-2D
C0541	A-3D
C0542	A-3D
C0543	B-4D
C0544	B-3D
C0545	B-3E
C0546	B-3D
C0547	A-4D
C0548	A-4D
C0550	B-2E
C0551	B-2E
C0552	B-2E
C0554	B-2E
C0555	A-3F
C0556	A-3F
C0557	A-3D
C0558	A-3F
C0559	A-3C
C0560	A-3C
C0601	B-3B
C0602	A-3B
C0603	B-3B
C0604	B-3B
C0605	A-3B
C0606	B-3C
C0607	B-3C
C0608	B-3C
C0609	B-3C
C0610	A-3C
C0611	B-3C
C0612	A-3C
C0613	A-2C
C0614	A-2C
C0615	B-3C
C0616	A-2C
C0617	B-2B
C0618	A-2B
C0619	A-3B
C0622	B-2B
C0635	B-9F
C0636	B-9F
C0637	B-9F
C0638	B-9F
C0641	A-9F
C0642	A-8F
C0643	A-8F
C0645	A-8E
C0647	A-9E
C0648	A-9E
C0649	B-9E
C0650	B-9E
C0651	B-9E
C0652	B-9F
C0671	A-7A
C0672	A-7A
C0673	A-1A
C0691	B-2B
C0692	B-2B
C0693	B-1B
C0694	B-2B
C0695	B-2B
C0696	B-1B
C0902	A-1C
C0904	A-2C
C0905	A-1C
C0906	A-2C
C0907	A-2C
C0908	A-2C
C0909	A-2C
C0910	B-2A
C0911	A-3B
C0912	A-3A
C0913	A-2C
C0914	B-3B
C0915	B-3B
C0916	B-3B
C0917	B-3B
C0918	A-2B
C0919	A-2B
C0923	A-4D
C0924	B-4C
C0925	B-4C
C0928	A-2B
C0929	A-2B
C0930	B-2A
C0932	A-4B
C0939	A-9G
C0941	A-5B
C0942	A-1B
C0943	A-4F
C0944	A-4E
C0945	A-4A
C0999	A-10F
C1101	A-9B
C1102	A-9A
C1103	B-8B
C1104	B-8B
C1105	B-9B
C1106	B-9B
C1108	B-9B
C1109	B-9B
C1110	B-8A
C1111	B-8B
C1112	A-8B
C1113	A-10B
C1114	A-10B
C1115	B-10B
C1116	B-10B
C1117	B-10B
C1118	B-10B
C1119	A-11C
C1120	A-11C
C1121	A-11C
C1122	A-11C
C1123	A-10C
C1125	B-10C
C1126	B-10C
C1127	B-10C
C1128	A-10C
C1129	A-10B
C1131	B-11C
C1132	A-10C
C1134	A-9B
C1135	A-9C
C1136	A-10B
C1139	B-10C
C1141	B-9B
C1142	B-9C
C1143	A-9D
C1144	B-10D
C1145	B-10D
C1146	B-10D
C1147	B-10D
C1148	A-10D
C1149	A-10D
C1150	A-9B
C1151	A-9B
C1152	B-9C
C1155	A-10B
C1156	B-9E
C1157	A-8C
C1158	B-8C
C1161	A-9C
C1168	A-9A
C1169	B-9C
C1201	B-10E
C1202	B-9E
C1203	A-10E
C1204	B-9E
C1205	A-9E
C1206	A-10E
C1207	A-9E
C1208	A-9D
C1209	A-9D
C1210	A-10D
C1211	A-10D
C1212	B-10D
C1213	A-10D
C1301	A-11A
C1302	A-11B
C1303	B-11B
C1304	B-11B
C1305	B-10D
C1311	B-11B
C1312	A-11B
C1313	A-8C
C1314	A-8A
CP	
CP0202	A-7C
CP0203	A-7B
CP0204	A-5C
CP1101	A-10C
D	
D0101	B-6E
D0201	A-6A
D0305	B-5E
D0352	B-5D
D0394	A-3F
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D0551	B-3E
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D0901	B-2A
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D1102	B-9C
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D1201	A-10E
D1301	B-10D
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F0552	B-2E
F0553	B-2F
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IC0204	B-4D
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IC0902	A-2C
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IC0907	A-9F
IC1101	B-9B
IC1102	A-10B
IC1103	A-9B
IC1104	B-9C
IC1105	B-9B
IC1201	B-9E
IC1301	B-11B
JK	
JK0200	B-1F
L	
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L0206	A-3C
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L1109	A-9C
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PG0601	B-5F
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PG0603	A-9F
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PG0901	A-1E
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PG1103	B-1B
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R0949	B-1C
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R0953	B-2B
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R0988	B-5B
R0989	B-5B
R0991	B-5B
R0992	B-7E
R0994	A-3A
R0995	A-3A
R0996	B-4C
R0997	B-3B
R0998	B-3B
R0999	B-5D
R1101	B-9B
R1112	A-10B
R1113	A-10A
R1114	A-10B
R1115	B-9B
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R1310	B-10C
R1311	B-10C
R1312	A-10A
R1313	A-10A
R1314	A-11B
R1315	A-11B
RT	
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RT0203	B-6C
RT0204	B-5B
RT0205	B-5B
RT0206	B-5C
RT0207	B-5C
RT0209	B-6C
RT0210	B-4C
RT0211	B-5D
RT0212	B-5C
RT0215	B-6C
RT0216	B-5C
SW	
SW0902	B-1D
SW0903	B-1D
SW0904	B-1C
SW0905	B-1D
SW0906	B-3A
T	
T0551	A-2D
TL	
TL1130	A-9D
TL1133	B-2B
TL1135	B-11C
TL1203	B-11A
TL1301	A-11C
TL1302	B-10B
TL1303	A-11C
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TL1309	B-10C
TL1310	A-10A
TL1311	B-10B
TL1312	B-11B
TL1315	A-11B
TL1325	A-11B
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TP0103	B-8B
TP0201	B-7B
TP0203	B-7B
TP0204	B-6B
TP0205	B-6C
TP0206	B-6C
TP0207	B-4C
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X0901	A-3B
X0902	A-2B
X1101	A-11C

MAS [MAIN] (TYPE 835, 837)

Symbol No.	Parts Location
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C0112	B-8D
C0113	B-8D
C0115	A-8D
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C0271	A-4B
C0272	B-3B
C0350	B-4D
C0351	A-4D
C0352	A-4E
C0353	A-4F
C0354	B-4D
C0355	B-4D
C0356	B-4E
C0358	A-4E
C0359	B-5D
C0360	B-5E
C0362	B-5E
C0364	A-5D
C0365	B-5D
C0367	A-5B
C0368	B-5E
C0369	B-5D
C0391	A-2F
C0392	A-1G
C0395	B-5E
C0401L	A-7E
C0401R	A-6E
C0402L	A-7E
C0402R	A-6E
C0403L	A-7F
C0403R	A-6E
C0404L	A-7F
C0404R	A-5E
C0405L	A-7F
C0405R	A-5E
C0406L	A-7E
C0406R	A-5E
C0407L	A-7F
C0407R	A-5E
C0408L	A-7F
C0408R	A-5E
C0409L	A-7F
C0409R	A-5F
C0410L	A-7F
C0410R	A-5F
C0411L	A-7F
C0411R	A-5F
C0412L	A-7F
C0412R	A-5F
C0413	A-7F
C0415L	A-7F
C0415R	A-6F
C0416	A-7G
C0417L	A-6F
C0417R	A-6F
C0418L	A-6F
C0418R	A-6G
C0419L	A-6F
C0419R	A-6F
C0420	A-6G
C0421	A-6F
C0422	A-6G
C0423	B-6E
C0424L	A-8F
C0424R	B-8F
C0425	A-10F
C0426	A-6E
C0428	A-7E
C0430L	B-8G
C0430R	B-8F
C0431L	B-8F
C0431R	B-8F
C0432	A-8F
C0439	A-8G
C0441L	A-7E
C0441R	A-6E
C0443	B-6E
C0445	A-6G
C0458	A-8G
C0459	A-8G
C0460	A-8G
C0462L	A-6E
C0462R	A-6E
C0465	A-10F
C0466	A-10E
C0467	B-10E
C0473	A-7E
C0474	A-8E
C0475L	B-8F
C0475R	B-8F
C0476L	A-7F
C0476R	A-8F
C0477	B-10E
C0483	A-9E
C0501	B-3C
C0502	B-3C
C0503	B-3C
C0504	B-3C
C0505	B-2C
C0507	B-2C
C0508	B-2C
C0509	B-2C
C0510	B-2D
C0511	B-2D
C0513	B-2D
C0514	B-2D
C0516	B-2D
C0517	B-2D
C0518	B-3D
C0519	B-3D
C0520	B-3D
C0521	B-3D
C0522	B-3D
C0523	B-3D
C0524	B-3C
C0525	B-3C
C0527	B-2E
C0528	B-2F
C0529	B-3E
C0531	A-3C
C0535	A-3E
C0537	A-3C
C0538	A-2C
C0539	A-3C
C0540	B-2D
C0541	A-3D
C0542	A-3D
C0543	B-4D
C0544	B-3D
C0545	B-3E
C0546	B-3D
C0547	A-4D
C0548	A-4D
C0550	B-2E
C0551	B-2E
C0552	B-2E
C0554	B-2E
C0555	A-3F
C0556	A-3F
C0557	A-3D
C0558	A-3F
C0559	A-3C
C0560	A-3C
C0601	B-3B
C0602	A-3B
C0603	B-3B
C0604	B-3B
C0605	A-3B
C0606	B-3C
C0607	B-3C
C0608	B-3C
C0609	B-3C
C0610	A-3C
C0611	B-3C
C0612	A-3C
C0613	A-2C
C0614	A-2C
C0615	B-3C
C0616	A-2C
C0617	B-2B
C0618	A-2B
C0619	A-3B
C0622	B-2B
C0635	B-9F
C0636	B-9F
C0637	B-9F
C0638	B-9F
C0641	A-9F
C0642	A-8F
C0643	A-8F
C0645	A-8E
C0647	A-9E
C0648	A-9E
C0649	B-9E
C0650	B-9E
C0651	B-9E
C0652	B-9F
C0671	A-7A
C0672	A-7A
C0673	A-1A
C0691	B-2B
C0692	B-2B
C0693	B-1B
C0694	B-2B
C0695	B-2B
C0696	B-1B
C0902	A-1C
C0904	A-2C
C0905	A-1C
C0906	A-2C
C0907	A-2C
C0908	A-2C
C0909	A-2C
C0910	B-2A
C0911	A-3B
C0912	A-3A
C0913	A-2C
C0914	B-3B
C0915	B-3B
C0916	B-3B
C0917	B-3B
C0918	A-2B
C0919	A-2B
C0923	A-4D
C0924	B-4C
C0925	B-4C
C0928	A-2B
C0929	A-2B
C0930	B-2A
C0932	A-4B
C0939	A-9G
C0941	A-5B
C0942	A-1B
C0943	A-4F
C0944	A-4E
C0945	A-4A
C0999	A-10F
C1101	A-9B
C1102	A-9A
C1103	B-8B
C1104	B-8B
C1105	B-9B
C1106	B-9B
C1108	B-9B
C1109	B-9B
C1110	B-8A
C1111	B-8B
C1112	A-8B
C1113	A-10B
C1114	A-10B
C1115	B-10B
C1116	B-10B
C1117	B-10B
C1118	B-10B
C1119	A-11C
C1120	A-11C
C1121	A-11C
C1122	A-11C
C1123	A-10C
C1125	B-10C
C1126	B-10C
C1127	B-10C
C1128	A-10C
C1129	A-10B
C1131	B-11C
C1132	A-10C
C1134	A-9B
C1135	A-9C
C1136	A-10B
C1139	B-10C
C1141	B-9B
C1142	B-9C
C1143	A-9D
C1144	B-10D
C1145	B-10D
C1146	B-10D
C1147	B-10D
C1148	A-10D
C1149	A-10D
C1150	A-9B
C1151	A-9B
C1152	B-9C
C1155	A-10B
C1156	B-9E
C1157	A-8C
C1158	B-8C
C1161	A-9C
C1168	A-9A
C1169	B-9C
C1201	B-10E
C1202	B-9E
C1203	A-10E
C1204	B-9E
C1205	A-9E
C1206	A-10E
C1207	A-9E
C1208	A-9D
C1209	A-9D
C1210	A-10D
C1211	A-10D
C1212	B-10D
C1213	A-10D
C1301	A-11A
C1302	A-11B
C1303	B-11B
C1304	B-11B
C1305	B-10D
C1311	B-11B
C1312	A-11B
C1313	A-8C
C1314	A-8A
CP	
CP0202	A-7C
CP0203	A-7B
CP0204	A-5C
CP0205	A-4C
CP0206	A-4C
CP1101	A-10C
D	
D0101	B-6E
D0102	B-8C
D0201	A-6A
D0305	B-5E
D0352	B-5D
D0394	A-3F
D0401	A-5F
D0403	A-5F
D0551	B-3E
D0552	A-3D
D0553	A-3D
D0601	B-2A
D0901	B-2A
D0902	B-6E
D1101	A-9D
D1102	B-9C
D1103	A-10D
D1104	A-10F
D1105	A-9D
D1201	A-10E
D1301	B-10D
F	
F0551	B-2F
F0552	B-2E
F0553	B-2F
IC	
IC0101	B-8E
IC0102	B-8B
IC0201	B-7B
IC0202	A-5D
IC0203	B-5D
IC0204	B-4D
IC0401	A-6F
IC0402	B-10F
IC0404	B-8F
IC0405	A-8F
IC0551	B-3C
IC0601	A-3C
IC0631	A-9F
IC0671	A-7A
IC0901	A-2B
IC0902	A-2C
IC0904	B-4C
IC0905	A-5B
IC0907	A-9F
IC1101	B-9B
IC1102	A-10B
IC1103	A-9B
IC1104	B-9C
IC1105	B-9B
IC1201	B-9E
IC1301	B-11B
JK	
JK0200	B-1F
L	
L0101	A-7D
L0102	A-7E
L0103	A-8E
L0104	B-7C
L0105	B-8A
L0107	A-8B
L0108	A-8B
L0109	B-8C
L0110	A-8B
L0111	A-8B
L0170	A-5E
L0171	A-5E
L0172	B-5C
L0201	A-5C
L0203	A-7B
L0204	B-5B
L0205	A-6B
L0206	A-3C
L0207	B-4B
L0350	A-5E
L0401	B-7E
L0402	B-10E
L0551	A-3F
L0552	A-3F
L0554	A-3E
L0556	A-3E
L0558	B-2D
L0559	A-3D

MAS [MAIN] (TYPE 835, 837)

Symbol No.	Parts Location
L0560	A-3D
L0561	A-3E
L0563	A-2F
L0564	A-2E
L0565	A-2E
L0566	B-3E
L0601	A-3C
L0902	B-4C
L0903	A-4B
L0904	B-1D
L0906	A-9G
L0908	A-2B
L0909	A-4E
L1101	A-9A
L1102	A-9B
L1103	B-10C
L1104	A-10C
L1105	A-10D
L1106	A-9D
L1107	A-10A
L1109	A-9C
L1301	A-10A
PG	
PG0101	A-8D
PG0401R	B-8F
PG0402	B-10F
PG0551	B-3F
PG0601	B-5F
PG0602	A-1B
PG0603	A-9F
PG0604	A-7A
PG0901	A-1E
PG0902	B-7A
PG0903	B-6A
PG0904	B-4F
PG0905	B-9F
PG1101	A-9C
PG1103	B-1B
PG1301	B-10B
Q	
Q0101	A-8D
Q0102	B-8D
Q0103	B-8E
Q0104	A-8D
Q0105	A-7D
Q0106	A-8D
Q0107	A-8C
Q0108	A-7E
Q0109	A-8E
Q0110	A-8E
Q0111	B-7A
Q0112	B-7A
Q0116	A-8A
Q0117	A-8B
Q0120	B-7C
Q0123	B-8C
Q0130	A-8C

Symbol No.	Parts Location
Q0131	A-8C
Q0140	B-7B
Q0170	A-5E
Q0171	B-5C
Q0173	A-5D
Q0175	A-5C
Q0176	A-5C
Q0201	A-6C
Q0202	A-6C
Q0203	A-6C
Q0204	A-6C
Q0206	A-6C
Q0208	B-6C
Q0209	B-6C
Q0210	A-6B
Q0216	A-7C
Q0217	A-7B
Q0219	A-6B
Q0221	A-6B
Q0224	B-4B
Q0225	A-4B
Q0226	A-4B
Q0228	B-4B
Q0229	B-4B
Q0231	B-4C
Q0232	B-4C
Q0233	B-4C
Q0350	B-4D
Q0352	B-4E
Q0356	B-4E
Q0357	A-5E
Q0358	A-4D
Q0360	B-5E
Q0361	B-5E
Q0362	B-5E
Q0363	B-5E
Q0364	B-6E
Q0365	B-6E
Q0366	B-5D
Q0367	B-5E
Q0368	B-6D
Q0370	A-5B
Q0371	A-5C
Q0372	A-5B
Q0373	A-5B
Q0374	A-5B
Q0390	A-3F
Q0395	B-5E
Q0401L	B-5E
Q0401R	B-5E
Q0402	B-5E
Q0403L	B-8F
Q0403R	B-8F
Q0404	A-8F
Q0409	A-8F
Q0410	A-8G
Q0411	B-10E

Symbol No.	Parts Location
Q0412	B-9E
Q0413	A-8F
Q0414	B-9E
Q0415	B-6F
Q0551	B-3F
Q0552	B-3E
Q0553	B-2E
Q0555	B-3E
Q0556	B-1B
Q0557	A-2D
Q0558	A-3D
Q0559	B-3D
Q0561	B-2E
Q0562	B-2E
Q0563	B-1A
Q0564	A-1A
Q0565	A-2A
Q0601	B-3C
Q0602	B-3C
Q0603	B-3C
Q0604	B-2C
Q0901	A-2C
Q0902	A-2C
Q0903	A-1D
Q0904	A-1D
Q0905	A-1D
Q0909	B-3A
Q0911	B-5B
Q0912	B-5B
Q0913	B-5B
Q1101	B-11C
Q1102	A-9C
Q1103	A-9D
Q1108	B-9D
Q1201	B-10E
Q1202	A-10E
Q1203	A-9D
R	
R0101	B-8E
R0102	B-8E
R0103	B-8D
R0104	B-8D
R0105	A-8C
R0106	B-8D
R0107	B-8D
R0108	B-8D
R0109	B-8D
R0110	B-7D
R0111	B-7E
R0112	A-8C
R0113	A-8D
R0114	A-8D
R0115	A-8D
R0116	A-8C
R0119	A-8D
R0120	A-8D
R0121	A-8E

Symbol No.	Parts Location
R0122	A-8E
R0123	A-8E
R0124	A-8E
R0125	A-8E
R0127	A-8D
R0128	A-8D
R0129	A-7D
R0130	A-7D
R0132	A-8C
R0138	B-7B
R0140	B-7B
R0141	B-7B
R0142	B-7B
R0143	B-7A
R0144	B-7A
R0145	B-7A
R0146	B-7A
R0147	B-8B
R0148	B-7A
R0149	B-8A
R0150	B-8C
R0151	B-8C
R0152	B-8B
R0153	B-7C
R0156	A-8C
R0157	B-7C
R0158	B-7C
R0159	B-8D
R0160	B-8C
R0161	B-8C
R0162	B-7C
R0163	B-7B
R0164	B-7B
R0165	A-8C
R0167	B-7D
R0168	B-6C
R0170	B-5C
R0171	B-5C
R0172	B-5C
R0173	B-5C
R0174	B-5B
R0175	B-5C
R0176	A-4C
R0180	A-4D
R0181	A-4D
R0182	A-4D
R0183	B-5C
R0184	A-5D
R0185	A-6D
R0186	A-5D
R0187	A-5D
R0188	B-5D
R0190	A-5C
R0191	A-5C
R0192	A-5C
R0193	A-5C
R0194	B-4C

Symbol No.	Parts Location
R0196	A-5C
R0198	A-5E
R0199	A-5E
R0201	A-6C
R0202	A-6C
R0203	B-6C
R0205	B-6C
R0207	A-5C
R0208	B-5B
R0209	B-6C
R0213	A-6B
R0215	A-6B
R0216	A-6C
R0217	A-7C
R0218	A-7B
R0219	A-7B
R0222	A-7B
R0223	A-7B
R0224	A-7B
R0225	A-6B
R0228	A-7B
R0229	A-6B
R0239	B-6B
R0240	B-6B
R0241	B-6B
R0243	A-6B
R0244	B-5B
R0245	B-3C
R0246	B-5B
R0247	A-6C
R0248	A-6C
R0253	A-7B
R0254	A-6B
R0255	B-4B
R0257	B-4B
R0258	B-4B
R0259	B-4B
R0260	B-4C
R0261	A-4B
R0265	A-6C
R0267	A-5B
R0268	A-5B
R0270	A-6B
R0271	B-4B
R0272	B-4C
R0274	A-6C
R0292	A-6C
R0293	A-6C
R0294	A-6C
R0295	A-6C
R0296	A-6C
R0298	A-6C
R0299	B-6C
R0336	A-5C
R0341	A-5B
R0342	A-5C
R0343	A-5B

Symbol No.	Parts Location
R0344	B-4C
R0346	B-5E
R0347	B-5E
R0350	B-4D
R0351	B-4D
R0354	B-5E
R0355	B-4E
R0356	B-4E
R0357	B-4D
R0359	B-4D
R0364	B-5D
R0366	B-5E
R0371	B-5E
R0373	B-5D
R0374	B-4E
R0382	B-5E
R0383	A-4D
R0384	B-5E
R0390	A-2G
R0391	A-2F
R0392	A-2F
R0397	A-2F
R0399	B-4E
R0401L	A-7F
R0401R	A-5F
R0402L	A-7F
R0402R	A-6F
R0403L	A-7F
R0403R	A-6F
R0405	A-6E
R0408	A-6E
R0410	A-6E
R0412	B-5E
R0413L	A-7F
R0413R	A-5F
R0415	B-6F
R0417L	B-8F
R0417R	B-8F
R0418L	B-8F
R0418R	B-8F
R0419L	B-8G
R0419R	B-8F
R0420L	A-7F
R0420R	A-8F
R0421L	A-8F
R0421R	B-9F
R0428	A-8F
R0429L	B-8F
R0429R	B-8F
R0435	A-7G
R0436L	A-7F
R0436R	A-6E
R0445	A-7E
R0447	B-6E
R0464	A-8G
R0466	A-8G
R0467	A-8G

Symbol No.	Parts Location
R0468	A-8G
R0469	A-8G
R0470	A-8G
R0473	B-10E
R0474	B-10E
R0477	A-8G
R0479	B-9E
R0480	B-10E
R0481	B-10E
R0482	B-9E
R0484	A-8E
R0485	A-8E
R0486	A-8E
R0487	A-8E
R0488L	B-8E
R0488R	B-8E
R0489L	A-8E
R0489R	A-8E
R0490L	B-8F
R0490R	B-8E
R0491L	B-8E
R0491R	B-8E
R0492L	A-8F
R0492R	A-7F
R0493L	A-7F
R0493R	A-8E
R0494L	A-7F
R0494R	A-8F
R0501	B-3C
R0502	B-3C
R0504	A-2D
R0505	B-2C
R0506	A-2D
R0507	B-2C
R0508	B-2C
R0510	B-2C
R0511	B-2D
R0512	B-2D
R0513	B-2D
R0514	B-2D
R0516	B-2D
R0517	B-2D
R0518	B-3D
R0519	B-3D
R0522	B-3D
R0525	B-3C
R0529	B-3E
R0530	B-3F
R0531	B-3F
R0532	B-3E
R0533	B-3E
R0534	B-1B
R0539	A-3E
R0540	A-3E
R0541	A-3D
R0545	B-3D
R0546	B-1B

Symbol No.	Parts Location
R0548	B-2D
R0549	A-2D
R0550	A-2D
R0551	B-2D
R0552	B-2D
R0555	B-3D
R0556	B-3D
R0558	B-3D
R0561	B-1E
R0562	B-2E
R0566	B-1E
R0567	B-2E
R0583	B-6D
R0601	B-3B
R0602	B-3B
R0603	B-3B
R0606	B-3B
R0607	A-3B
R0608	B-3C
R0609	A-4C
R0610	B-3B
R0611	B-3C
R0612	B-3C
R0613	B-3B
R0614	B-3C
R0616	B-3C
R0619	B-3B
R0620	B-3C
R0621	B-3C
R0622	B-3B
R0623	B-2C
R0624	B-2B
R0628	B-2B
R0640	B-9E
R0641	B-9F
R0642	B-9F
R0643	A-9E
R0644	A-9E
R0662	A-1B
R0663	A-1B
R0671	A-6A
R0672	A-6A
R0681	A-5F
R0682	A-5F
R0691	B-2B
R0692	B-2B
R0693	B-1B
R0694	B-2B
R0695	B-2B
R0696	B-1B
R0701	B-3A
R0702	A-9F
R0703	B-4E
R0704	B-2A
R0705	B-4E
R0706	B-1C
R0707	B-1C

Symbol No.	Parts Location
R0708	B-1C
R0711	A-5B
R0712	A-5B
R0713	A-5B
R0714	B-4E
R0715	A-5B
R0718	A-3A
R0721	B-1E
R0722	B-1E
R0723	B-1D
R0724	B-1D
R0725	B-1D
R0728	B-5B
R0732	A-2A
R0733	A-2A
R0739	B-2B
R0740	B-2B
R0741	A-3A
R0743	B-3A
R0744	A-3A
R0746	B-3B
R0751	B-2B
R0753	A-4E
R0754	B-9F
R0755	B-9F
R0901	A-2C
R0903	A-2C
R0904	A-2C
R0905	A-2C
R0906	A-2C
R0907	A-2C
R0908	A-1D
R0909	B-1D
R0912	A-1D
R0913	A-1D
R0914	A-2A
R0915	A-2A
R0916	A-2A
R0917	B-2A
R0918	B-2A
R0919	B-2A
R0920	A-2A
R0921	A-2A
R0922	A-2A
R0923	A-2A
R0924	A-3A
R0925	A-3A
R0926	A-3A
R0927	B-2A
R0928	B-2A
R0929	B-2A
R0930	B-2A
R0931	B-2A
R0932	B-2A
R0933	B-2A
R0934	B-3A
R0935	B-2A

MAS [MAIN] (TYPE 835, 837)

Symbol No.	Parts Location
R0936	B-3A
R0937	B-3A
R0938	B-2A
R0941	A-3A
R0942	A-3B
R0943	A-3B
R0944	B-4D
R0945	A-3B
R0946	B-3B
R0948	B-1C
R0949	B-1C
R0950	B-2B
R0951	B-3B
R0952	B-2B
R0953	B-2B
R0954	A-4B
R0955	B-3B
R0957	B-4B
R0958	B-3B
R0961	B-2A
R0962	B-2A
R0963	B-4B
R0964	B-2B
R0966	B-2B
R0969	B-3B
R0970	B-2B
R0971	B-4D
R0972	B-3B
R0974	B-2B
R0975	B-4D
R0976	A-1D
R0977	A-1D
R0978	B-2B
R0979	B-2B
R0980	B-2C
R0981	B-2C
R0982	B-2C
R0983	B-2C
R0984	A-2B
R0985	A-2B
R0986	B-5C
R0987	B-5B
R0988	B-5B
R0989	B-5B
R0991	B-5B
R0992	B-7E
R0994	A-3A
R0995	A-3A
R0996	B-4C
R0997	B-3B
R0998	B-3B
R0999	B-5D
R1101	B-9B
R1112	A-10B
R1113	A-10A
R1114	A-10B
R1115	B-9B
R1116	B-9B
R1117	B-9B
R1118	B-10B
R1119	B-10B
R1120	B-10B
R1121	A-11B
R1122	A-11C
R1123	A-11C
R1124	A-9C
R1125	A-9C
R1126	B-10C
R1127	B-10C
R1128	B-10C
R1129	B-10C
R1130	B-11C
R1131	A-10C
R1132	A-9C
R1133	A-9D
R1136	A-8C
R1137	B-11C
R1142	B-9D
R1143	B-9C
R1145	A-9C
R1146	A-9C
R1147	A-9C
R1148	B-9C
R1149	B-9D
R1150	B-9D
R1155	B-10D
R1156	B-10D
R1157	B-10C
R1158	B-10C
R1159	B-2B
R1160	B-2B
R1161	B-2B
R1162	B-2B
R1163	B-2B
R1169	A-10D
R1170	A-10D
R1175	A-9C
R1201	B-10E
R1202	A-9E
R1203	A-9E
R1204	A-10E
R1205	A-9E
R1206	A-10E
R1207	A-9D
R1208	B-9D
R1209	B-9D
R1210	B-9E
R1211	A-9D
R1212	A-9D
R1213	A-10D
R1214	A-9D
R1215	A-9D
R1216	A-10D
R1218	A-10D
R1220	A-10D
R1221	A-10E
R1222	A-10E
R1223	B-10E
R1225	A-10E
R1226	A-10E
R1303	B-10D
R1308	B-9C
R1309	B-10C
R1310	B-10C
R1311	B-10C
R1312	A-10A
R1313	A-10A
R1314	A-11B
R1315	A-11B
RT	
RT0103	B-7A
RT0202	B-6C
RT0203	B-6C
RT0204	B-5B
RT0205	B-5B
RT0206	B-5C
RT0207	B-5C
RT0209	B-6C
RT0210	B-4C
RT0211	B-5D
RT0212	B-5C
RT0214	B-5C
RT0215	B-6C
RT0216	B-5C
RT0217	B-5C
SW	
SW0902	B-1D
SW0903	B-1D
SW0904	B-1C
SW0905	B-1D
SW0906	B-3A
T	
T0551	A-2D
TL	
TL1130	A-9D
TL1133	B-2B
TL1135	B-11C
TL1203	B-11A
TL1301	A-11C
TL1302	B-10B
TL1303	A-11C
TL1304	B-10B
TL1305	B-11B
TL1306	B-11A
TL1307	B-11A
TL1308	B-10B
TL1309	B-10C
TL1310	A-10A
TL1311	B-10B
TL1312	B-11B
TL1313	B-9B
TL1314	B-8C
TL1315	A-11B
TL1325	A-11B
TP	
TP0101	B-7C
TP0103	B-8B
TP0201	B-7B
TP0203	B-7B
TP0204	B-6B
TP0205	B-6C
TP0206	B-6C
TP0207	B-4C
X	
X0201	A-7B
X0901	A-3B
X0902	A-2B
X1101	A-11C

LCD [LCD DRIVE]

Symbol No.	Parts Location
C	
C5304	A-3A
C5305	A-4A
C5306	A-4B
C5308	A-3B
C5309	A-4B
C5310	A-4B
C5311	B-4B
C5312	B-5A
C5313	B-5B
C5314	A-4A
C5315	A-5A
C5316	A-4A
C5317	A-4A
C5318	A-5A
C5319	B-5A
C5320	A-4A
C5321	A-4A
C5322	A-4A
C5323	A-4A
C5324	B-3A
C5325	A-3A
C5326	A-3A
C5327	A-4A
C5328	B-4A
C5329	A-4B
C5336	A-4A
C5337	A-3A
C5338	A-3A
C5340	A-4A
C5341	A-4A
C5401	A-3C
C5402	A-3D
C5403	A-3C
C5404	A-3D
C5405	A-3C
C5406	B-4D
C5407	B-3D
C5408	B-3D
C5409	B-3C
C5410	B-3C
C5411	B-3C
C5412	B-3C
C5413	B-4C
C5414	B-4C
C5415	A-3B
C5416	A-3C
C5417	A-3C
C5418	A-3C
C5419	A-4C
C5420	A-4C
C5421	A-4C
C5422	A-4C
C5501	A-3B
C5502	B-4B
C5503	B-3B
C5504	B-3A
C5505	B-3A
C5506	A-3B
C5507	B-3C
C5508	B-3C
C5509	B-3B
C5510	B-3B
C5511	B-3C
C5512	A-3B
C5513	A-2B
C5514	B-1C
C5515	A-2B
C5516	A-2B
C5517	A-2B
C5601	A-4C
C5602	A-4C
C5603	A-4D
C5604	A-4C
C5605	B-5C
C5606	A-4C
C5607	A-4C
C5608	A-4B
C5609	A-5B
C5610	B-5C
C5611	B-4C
C5612	B-4C
C5613	B-4C
C5614	B-4C
C5615	B-4C
C5616	B-5B
C5617	A-4D
C5619	A-4C
C5620	B-4B
C5621	B-5C
C5622	B-5D
D	
D5401	A-3D
D5402	B-4C
D5403	B-3C
D5404	B-3B
D5501	A-3B
D5601	A-4C
D5602	B-4C
IC	
IC5301	A-4A
IC5401	B-3D
IC5501	B-3B
IC5502	A-3B
IC5601	A-4C
IC5602	B-4C
L	
L5301	A-5A
L5302	A-3A
L5303	A-4B
L5401	B-3C
L5402	A-3C
L5403	A-3C
L5404	A-3B
L5501	A-3B
L5502	B-2C
L5503	B-3B
L5601	A-3C
L5602	A-4B
L5603	A-4B
L5604	B-4C
PG	
PG5501	B-2D
PG5701	B-2B
PG5702	B-4D
Q	
Q5301	A-4B
Q5302	A-4B
Q5401	A-3D
Q5402	A-3D
Q5403	A-3C
Q5404	A-3D
Q5405	B-3C
Q5406	B-3C
Q5501	A-4B
Q5502	A-4B
Q5503	B-3B
Q5504	B-4A
Q5505	B-4B
Q5506	B-4B
Q5507	B-4B
Q5508	A-4B
Q5509	A-4B
Q5510	B-3B
Q5511	B-3C
Q5512	B-3B
Q5513	B-3B
Q5514	A-4B
Q5601	A-4C
Q5602	A-4C
Q5604	A-5C
Q5605	A-4C
Q5606	A-4C
R	
R5301	A-3A
R5302	A-4B
R5303	A-4B
R5304	A-2A
R5307	B-3A
R5308	B-3A
R5309	A-4B
R5310	A-4B
R5311	B-4A
R5312	B-4B
R5313	B-5B
R5314	B-5B
R5315	A-4A
R5316	A-5A
R5317	A-5A
R5318	A-4A
R5319	A-4A
R5320	A-5A
R5323	B-4A
R5324	B-5A
R5325	B-4A
R5326	B-4A
R5327	B-4A
R5328	B-4A
R5329	B-4A
R5330	B-4A
R5331	A-4A
R5332	A-3A
R5333	B-3A
R5334	B-3A
R5336	A-3A
R5338	A-3A
R5339	A-3B
R5340	A-3B
R5341	B-4A
R5342	B-4A
R5351	B-4A
R5356	B-4B
R5357	B-3A
R5401	A-3D
R5402	A-3C
R5404	B-3C
R5405	B-3C
R5406	B-3D
R5407	B-3D
R5408	B-4D
R5409	B-3C
R5410	B-3C
R5411	B-3C
R5412	B-3C
R5413	B-3C
R5414	B-3C
R5415	B-3C
R5416	B-3C
R5417	B-4C
R5420	A-3D
R5501	A-3B
R5502	B-3A
R5503	B-3B
R5504	B-3B
R5505	B-3A
R5506	B-3A
R5507	B-4A
R5508	B-3B
R5509	B-4B
R5510	B-4B
R5511	B-4B
R5512	A-3B
R5513	A-3A
R5514	A-3B
R5515	A-3B
R5518	A-3B
R5519	A-3B
R5521	A-3B
R5522	B-3B
R5523	B-3B
R5524	B-3B
R5525	B-2B
R5526	B-3B
R5527	A-4B
R5528	A-4B
R5529	A-4B
R5601	A-4C
R5602	A-4C
R5603	A-4C
R5604	A-4C
R5605	A-4C
R5606	A-4C
R5607	A-4C
R5609	A-4D
R5610	A-5C
R5611	A-5C
R5612	A-4C
R5613	B-4B
R5614	B-5B
R5615	A-4C
R5616	A-4C
R5617	B-4B
R5618	B-4B
R5619	B-4C
R5620	B-4C
R5621	B-5C
R5622	B-4C
R5623	B-4C
R5624	B-4C
R5625	B-4C
R5626	B-4C
R5627	B-4C
R5628	B-4C
R5629	B-4C
R5630	B-4C
R5631	B-4C
R5632	B-4B
R5633	B-4B
R5634	B-4B
R5635	B-4B
R5636	B-4B
R5637	B-5B
R5638	A-4D
R5639	A-4D
R5642	B-5C
R5643	B-4C
R5644	B-5C
R5645	B-5B
R5646	B-4B
R5647	A-4C
R5648	A-4C
R5650	A-5C
R5708	B-4C
R5710	B-5B
R5711	B-5B
R5712	B-5B
R5713	B-5B
RT	
RT5301	B-4A
RT5302	B-4A
RT5307	B-5A
RT5308	B-5A
RT5311	B-4A
RT5312	B-4A
RT5313	B-4A
RT5314	B-4A
RT5315	B-3A
RT5316	B-3A
RT5601	B-4B
RT5602	B-4B
RT5603	B-4B
RT5604	B-4B
RV	
RV5602	B-5B
RV5701	A-6A
RV5702	A-6B
SW	
SW5701	A-1B
T	
T5401	B-3C
T5501	A-2B
X	
X5301	A-5B
ZD	
ZD5601	B-5C
ZD5702	B-5B

VFR [EVF REG]

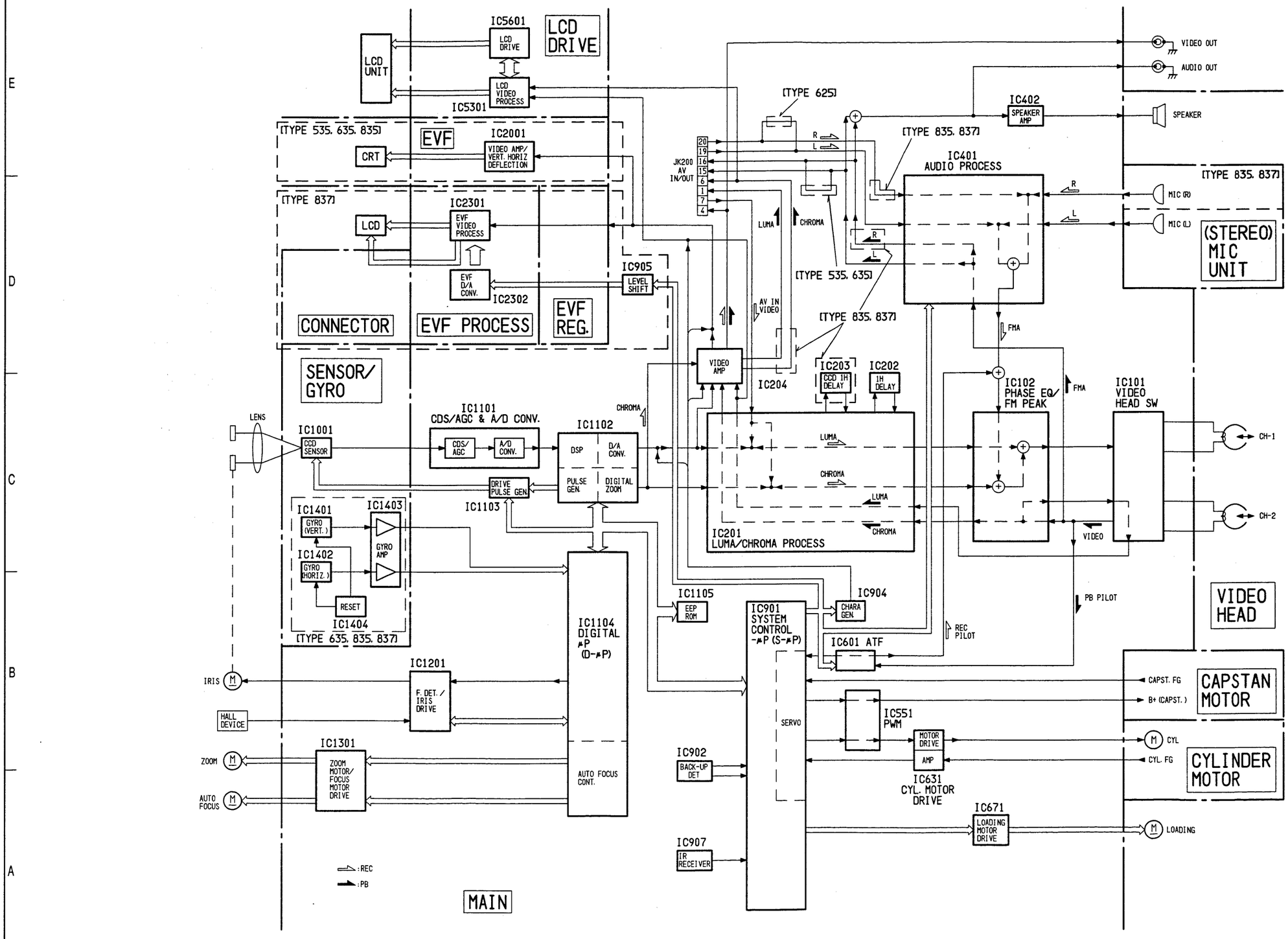
Symbol No.	Parts Location
C	
C2402	B-2A
C2403	B-1A
C2404	B-1A
C2406	B-1A
C2408	A-2A
C2409	A-1A
C2410	B-2A
C2411	B-1A
C2414	A-2A
C2415	A-1A
C2416	A-1A
D	
D2401	B-2A
D2402	B-2A
D2403	B-1A
D2404	B-2A
IC	
IC2401	B-2A
IC2402	B-1A
L	
L2401	B-2A
L2403	B-2B
L2404	B-1B
PG	
PG2401	A-2B
PG2402	A-1A
PG2403	A-2A
Q	
Q2403	B-2A
R	
R2401	B-2A
R2403	B-2A
R2404	B-1A
R2405	B-1A
R2407	B-1A
R2408	B-1A
R2409	B-1A
R2410	B-1A
R2411	B-1A
R2412	B-2A
R2414	A-2A
R2415	A-2A

VFM [EVF PROCESS]

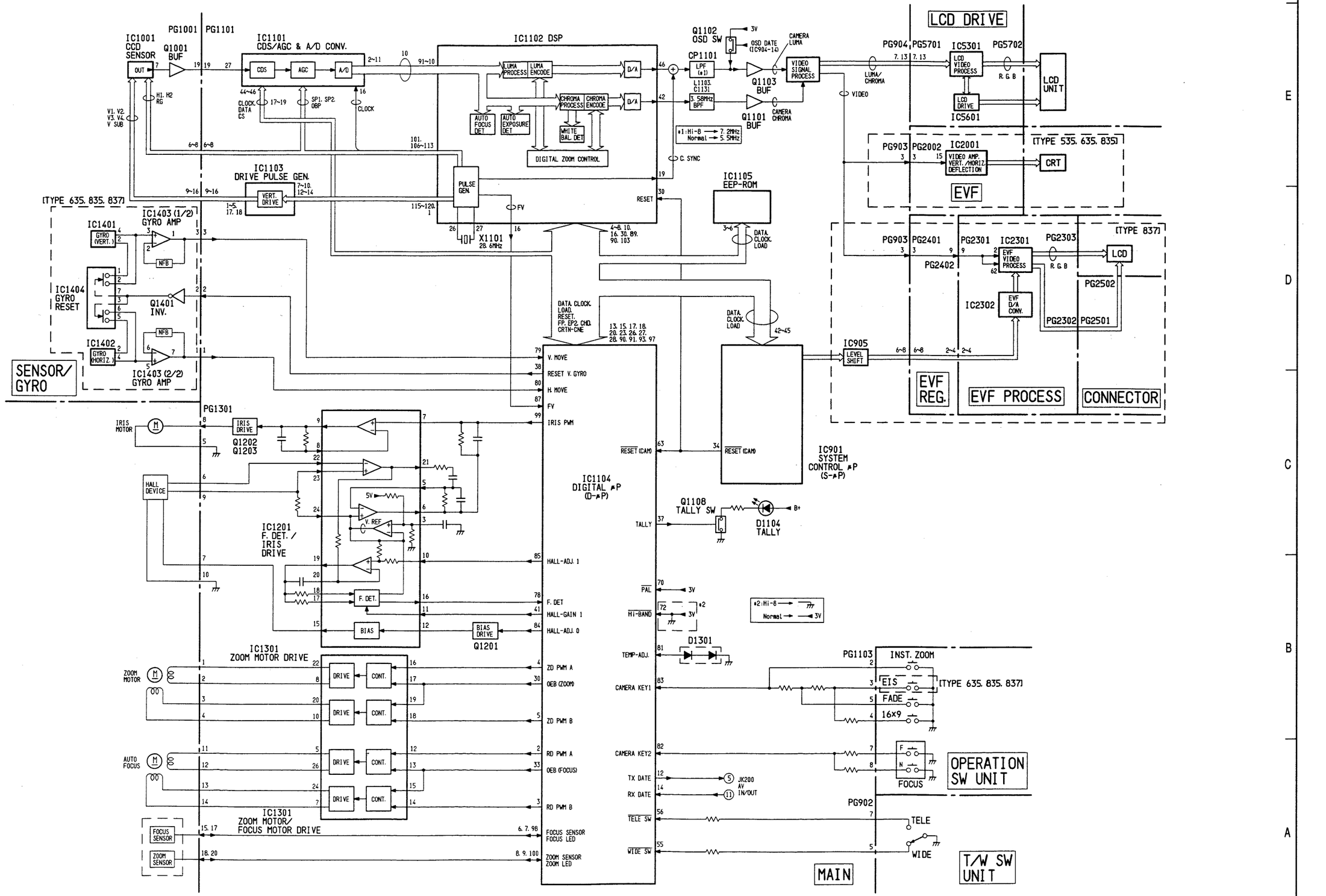
Symbol No.	Parts Location
C	
C2301	A-2A
C2302	A-2A
C2303	A-2A
C2304	A-2A
C2305	A-1A
C2306	A-1A
C2307	A-2A
C2308	B-2B
C2309	B-1B
C2310	A-2B
C2311	A-2B
C2312	A-1B
C2313	B-2B
C2314	A-1B
C2315	B-1B
C2316	B-1B
C2317	B-1B
C2318	B-1A
C2319	A-1A
C2320	B-2A
C2321	A-2A
C2322	A-2A
C2323	A-2B
C2324	B-2A
C2325	A-2B
C2326	A-2A
C2327	A-2B
C2328	A-2B
C2329	A-2B
C2330	B-2A
C2331	A-3B
C2332	A-2B
C2333	A-2B
C2334	A-2B
C2335	A-2B
D	
D2301	B-1B
IC	
IC2301	A-2A
IC2302	B-3A
L	
L2301	B-2B
L2302	B-1B
PG	
PG2301	B-2B
PG2302	B-2A
PG2303	A-1A
Q	
Q2301	B-1B
Q2302	B-1B
R	
R2301	B-1A
R2302	B-2A
R2303	B-1A
R2304	B-2A
R2305	B-1A
R2306	B-2A
R2307	B-2A
R2308	B-2A
R2309	A-2A
R2310	A-2A
R2311	A-1A
R2312	A-2B
R2313	A-2B
R2314	A-2B
R2315	A-2B
R2316	A-2B
R2317	A-2B
R2318	A-2B
R2319	A-2B
R2320	B-2B
R2321	A-3B
R2322	B-1A
R2323	A-1B
R2324	A-1B
R2325	A-1B
R2326	A-1B
R2327	B-1B
R2328	B-1A
R2329	B-1A
R2330	B-1A
R2331	B-1A
R2332	B-1A
R2335	B-1A
R2336	B-1A
R2337	B-1A
X	
X2301	A-2A

BLOCK DIAGRAMS

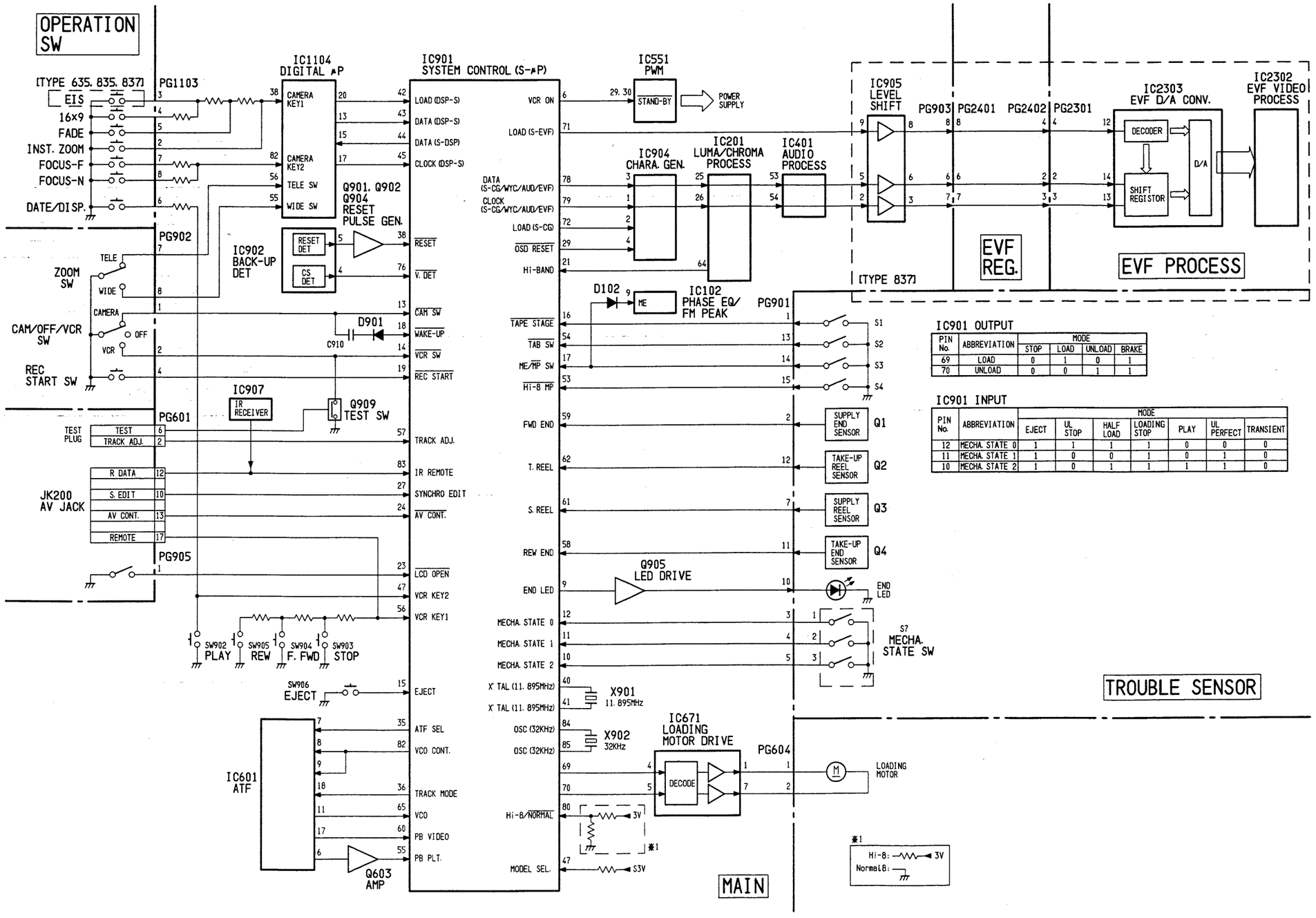
1.OVERALL BLOCK DIAGRAM



2.CAMERA BLOCK DIAGRAM



3.SYSTEM CONTROL BLOCK DIAGRAM



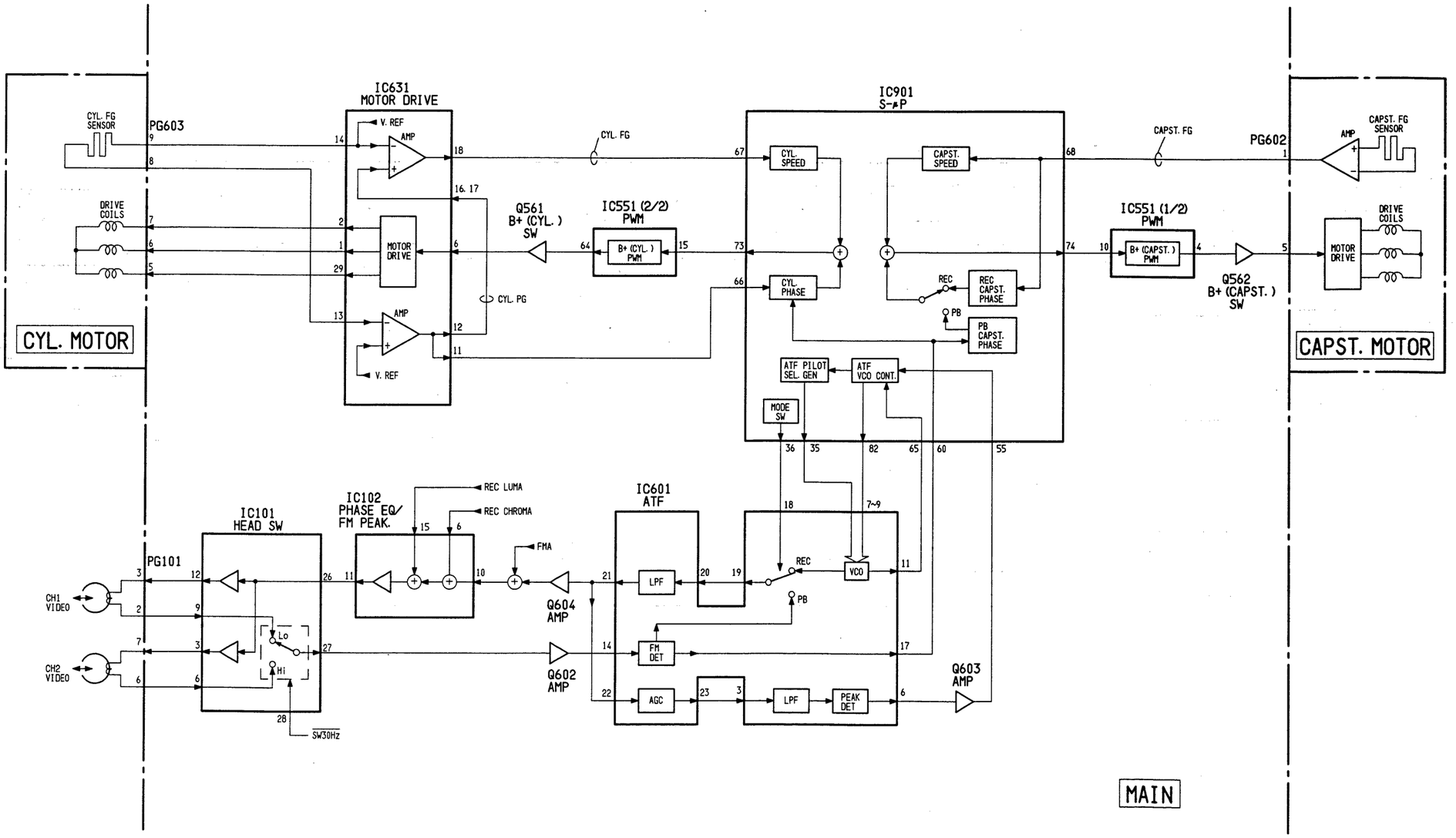
IC901 OUTPUT

PIN No.	ABBREVIATION	MODE			
		STOP	LOAD	UNLOAD	BRAKE
69	LOAD	0	1	0	1
70	UNLOAD	0	0	1	1

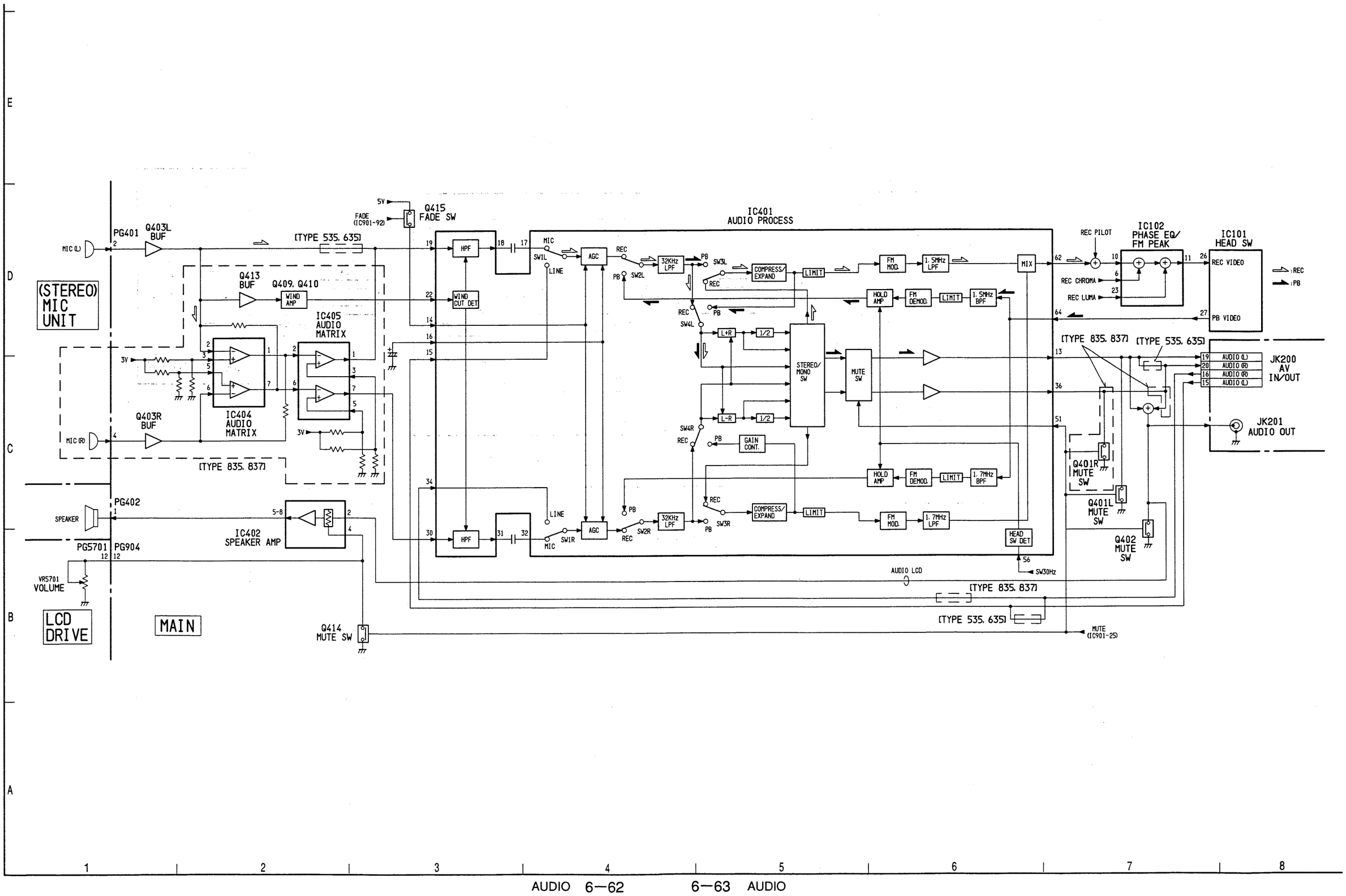
IC901 INPUT

PIN No.	ABBREVIATION	MODE						
		EJECT	UL STOP	HALF LOAD	LOADING STOP	PLAY	UL PERFECT	TRANSIENT
12	MECHA. STATE 0	1	1	1	1	0	0	0
11	MECHA. STATE 1	1	0	0	1	0	1	0
10	MECHA. STATE 2	1	0	1	1	1	1	0

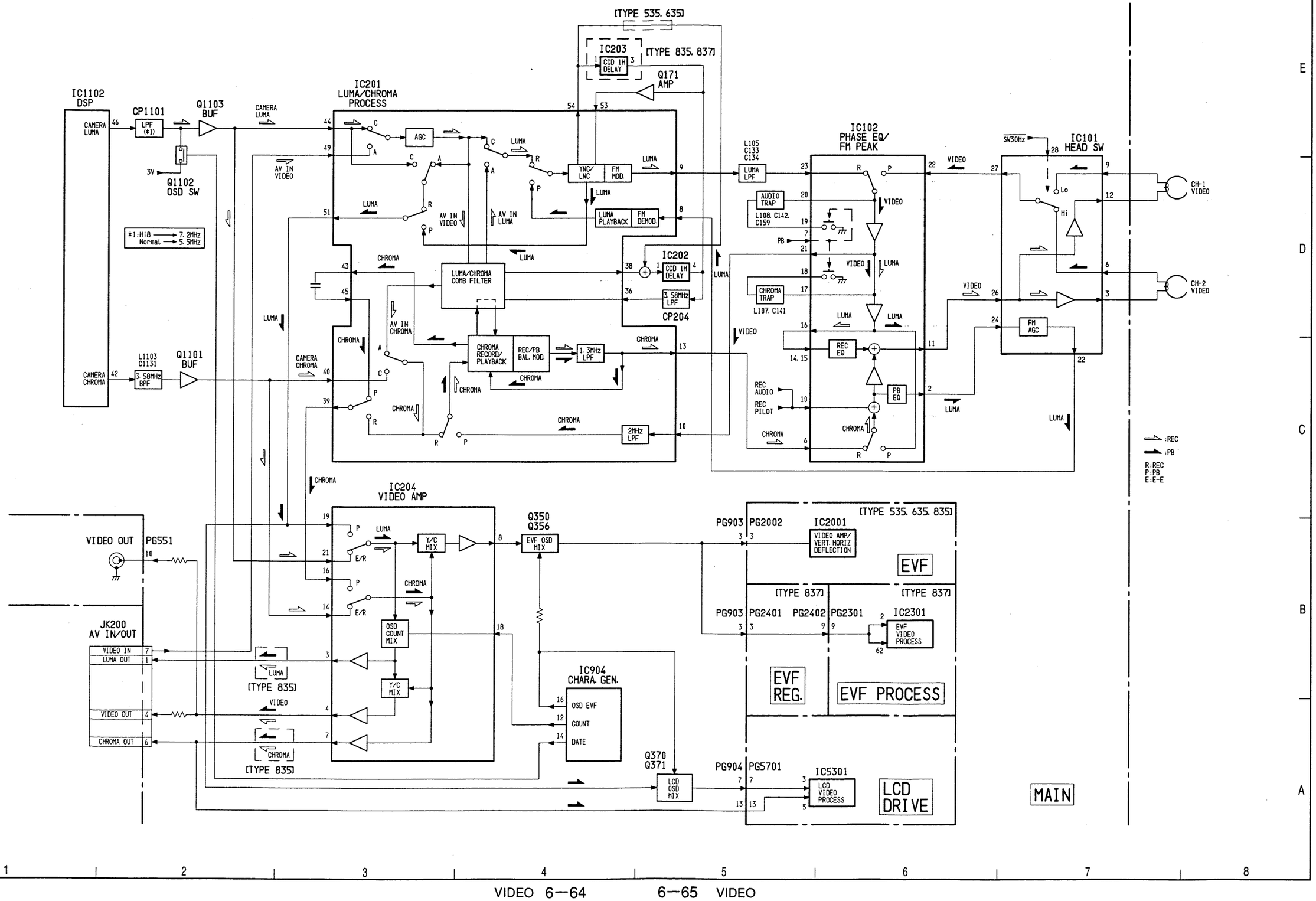
4.SERVO BLOCK DIAGRAM



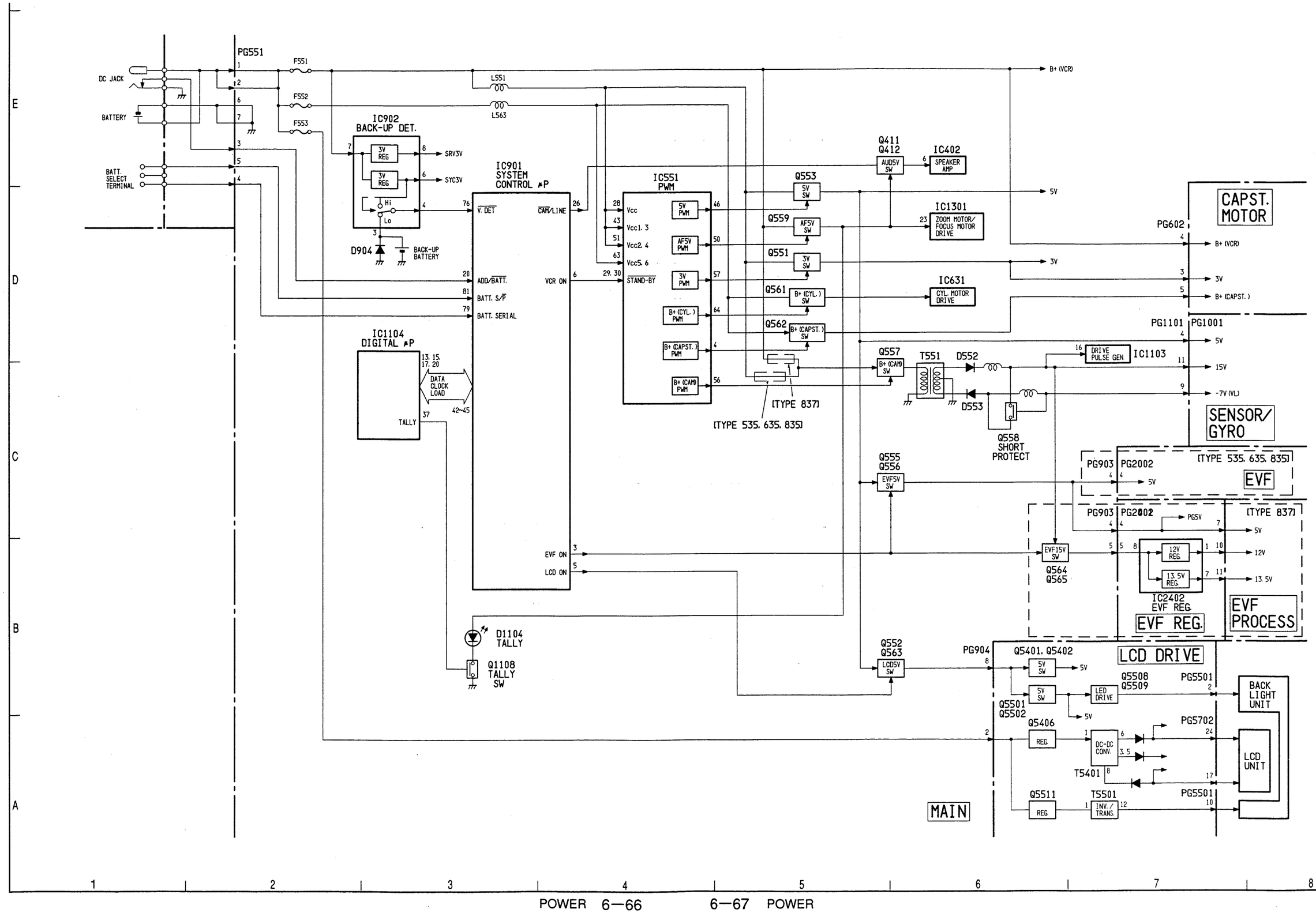
5.AUDIO BLOCK DIAGRAM



6.VIDEO BLOCK DIAGRAM



7.POWER BLOCK DIAGRAM



MICROPROCESSOR PIN FUNCTION TABLES

1. Digital Microprocessor (IC1104: D-μP)

Pin No.	I/O	Active Level	Abbreviation	Function
1	-----	------	VCC	3V power input.
2	O	PWM	RD-PWM-A	Outputs focus motor drive signal to IC1301 (FOCUS MOTOR/ZOOM MOTOR DRIVE).
3	O	PWM	RD-PWM-B	
4	O	PWM	ZD-PWM-A	Outputs zoom motor drive signal to IC1301 (FOCUS MOTOR/ZOOM MOTOR DRIVE).
5	O	PWM	ZD-PWM-B	
6	O	(Pulse)	FCS-LED1	Output pulses to drive the LEDs in the focus reset switches (FOCUS RESET SW).
7	O	(Pulse)	FCS-LED2	
8	O	(Pulse)	ZOOM LED1	Output pulses to drive the LEDs in the zoom reset switches (ZOOM RESET SW).
9	O	(Pulse)	ZOOM LED2	
10	-----	-----	RESO[Lo]	Not used. Open.
11	-----	-----	VSS	Ground.
12	O	(Pulse)	SD (232C)	Used for initial settings and adjustment. For data communications with personal computer.
14	I	(Pulse)	RD (232C)	
13	O	(Pulse)	SD	For data communications with IC1102 (DSP), IC1105 (EEP-ROM) and IC901 (S-μP).
15	I	(Pulse)	S1	
17	O	(Pulse)	CLK	
16	-----	-----	----------	Not used. Open.
18	O	(Pulse)	LD-DSP)	Activates data communications with IC1102 (DSP).
19	-----	-----	CS-MB	Not used. Open.
20	O	(Pulse)	CS-MA	Activates data communications with IC901 (S-μP).
21	-----	-----	LD-EV	Not used. Open.
22	-----	-----	VSS	Ground.
23	O	Lo	CS-EE	Activates data communications with IC1105 (EEP-ROM).
24	-----	-----	----------	Not used. Open.
25	-----	-----	----------	
26	O	(Pulse)	CS-CDS	Transfer data to IC1101 (CDS/AGC).
27	O	(Pulse)	CLK-CDS	
28	O	(Pulse)	SD-CDS	
29	-----	-----	ZD-RESET	Not used. Open.
30	O	Hi	ZDOEB	Activates data communications with IC1301 (FOCUS MOTOR/ZOOM MOTOR DRIVE).
31	-----	-----	ZDCW	Not used. Open.
32	-----	-----	RD-RESET	
33	O	(Pulse)	RDOEB	Activates data communications with IC1301 (FOCUS MOTOR/ZOOM MOTOR DRIVE).
34	-----	-----	RDCW	Not used. Open.
35	-----	-----	VCC	3V power input.
36	-----	-----	LD-VDRV	Not used. Open.
37	O	Hi	TALLY	Drives Q1108 (TALLY SW) to turn on the record LED during recording.
38	O	Hi	VGRO-RES	Drives IC1404 (GYRO RESET) via Q1401 (INV.) to reset IC1401 (V. GYRO) and IC1402 (H. GYRO).
39	-----	-----	HGRO-RES	Not used. Open.
40	-----	-----	HALL G0	
41	O	Hi	HALL G1	Control the amplification (gain of Hall device) of IC1201 (F.DET/IRIS DRIVE).
42	-----	-----	JIG-LOAD	Not used. Open.
43	-----	-----	CHECKB	
44	-----	-----	VSS	Ground.
45	----	-----	----------	Not used. Open.
46	----	-----	----------	
47	----	-----	----------	
48	----	-----	----------	
49	----	-----	----------	
50	----	-----	----------	

Pin No.	I/O	Active Level	Abbreviation	Function
51	-----	-----	----------	Not used. Open.
52	-----	-----	----------	
53	-----	-----	BRST-FLG	
54	-----	-----	T/W-FAST	
55	I	Lo	WIDE-SW	Zoom switch detection inputs.
56	I	Lo	TELE-SW	
57	-----	-----	VSS	Ground.
58	-----	-----	CLK-EV	Not used. Open.
59	-----	-----	SD-EV	
60	-----	-----	PWR-SAVE	
61	-----	-----	----------	
62	I	Lo	STBY[Lo]	No used. Connected to 3V power supply.
63	I	Lo	RESET[Lo]	Reset signal input from IC901 (S-µP).
64	I	Lo	NM1[Lo]	Not used. Connected to 3V power supply.
65	-----	-----	VSS	Ground.
66	I	(Pulse)	XIN	Clock pulse input from IC1102 (DSP).
67	-----	-----	XOUT	Not used. Open.
68	-----	-----	VCC	3V power input.
69	-----	-----	----------	Not used. Open.
70	I	Hi/Lo	PAL[Lo]	NTSC model: Not used. Connected to 3V power supply. PAL model: Used. Connected to ground.
71	I	Hi/Lo	SECAM[Lo]	Not used. Connected to 3V power supply.
72	I	Hi/Lo	Hi-BAND[Lo]	Normal 8 model: Not used. Connected to 3V power supply. Hi-8 model: Used. Connected to ground.
73	I	Lo	MD0	Not used. Ground.
74	I	Hi	MD1	Not used. Connected to 3V power supply.
75	I	Hi	MD2	
76	-----	-----	AVCC	5V power input (for analog circuits in microprocessor).
77	-----	-----	VREF	A/D reference voltage input (connected to 5V power supply).
78	-----	0V-5V	FDET	F-value detection input. Receives the F.DET voltage detected by IC1201 (F.DET/IRIS DRIVE) and compares this with the reference voltage input via pin 77 to detect the F-value.
79	I	0V-5V	V-MOVE	Receives vertical camera shake correction data from IC1401 (GYRO (VERT.)) via IC1403 (GYRO AMP).
80	I	0V-5V	H-MOVE	Receives horizontal camera shake correction data from IC1402 (GYRO (HORIZ.)) via IC1403 (GYRO AMP).
81	I	0V-5V	TEMP-ADJ	Temperature change detection input. Detects variations in the forward voltage at the connected diode to correct the back-focus.
82	I	0V-5V	CAM-KEY2	Camera switch detection input (Manual focus).
83	I	0V-5V	CAM-KEY1	Camera switch detection input (EIS, fade, cinema mode, instant zoom).
84	O	0V-5V	HAL-ADJ0	Drives bias generator in IC1201 (F.DET/IRIS DRIVE) via Q1201 (BUF) to control the bias voltage of the Hall devices.
85	O	0V-5V	HAL-ADJ.1	Controls the offset voltage of IC1201 (F.DET/IRIS DRIVE).
86	-----	-----	AVSS	Ground.
87	I	(Pulse)	FV	Receives the vertical sync pulses that detect the iris detection area, from IC1103 (DSP).
88	-----	-----	NEAR-SW	Not used. Open.
89	-----	-----	FAR-SW	Not used. Open.
90	I	(Pulse)	FP	Field discrimination pulse input.
91	I	(Pulse)	EP2	Receives pulses which discriminate the iris detection area.
92	----	-----	VSS	Ground.
93	I	(Pulse)	CHD(CNE)	Horizontal sync input.
94	-----	-----	----------	Not used. Open.
95	-----	-----	SUB-PWM	
96	-----	-----	----------	

Pin No.	I/O	Active Level	Abbreviation	Function
97	O	(Pulse)	CRTN-CNE	Supplies pulses to IC1102 (DSP) to control the wipe fade operation.
98	I	(Pulse)	FOCS-SEN	Focus motor position detection input.
99	-----	(Pulse)	IRIS PWM	Iris motor drive output .
100	I	(Pulse)	ZOOM-SEN	Zoom motor position detection input.

2. System Control Microprocessor (IC901: S-µP)

Pin No.	I/O	Active Level	Abbreviation	Function
1	O	Lo	CH2. REC[Lo]	Output the signals to select the video heads for recording.
2	O	Lo	CH1. REC[Lo]	Go "Lo" in the corresponding channel period during recording.
3	O	Hi/Lo	EVF. ON	EVF power control output. Outputs "Hi" when power is turned on.
4	O	(Pulse)	SW30Hz	Head switching pulse output.
5	O	Hi/Lo	LCD. ON	LCD power control output. Outputs "Hi" when power is turned on.
6	O	Hi/Lo	VCR ON	Power control output. Outputs "Hi" when power is turned on.
7	O	Hi/Lo	PB	Output to control the mode of the video processor. Goes "Hi" during playback.
8	O	Hi	D-STANDBY	Cylinder motor start auxiliary output. Outputs "Hi" for 50 ms when the motor is started in the forward rotation direction.
9	O	(Pulse)	END LED	End LED drive output. Outputs pulses of approx. 50Hz when power is turned on.
10	I	0V-5V	M-SW2	Mechanism state switch position (mode) detection input.
11	I	0V-5V	M-SW1	
12	I	0V-5V	M-SW0	
13	I	Lo	CAM SW[Lo]	Power switch detection input. "Lo" is input during recording (camera mode).
14	I	Lo	VCR SW[Lo]	Power switch detection input. "Lo" is input during playback (VCR mode).
15	I	Lo	EJECT SW[Lo]	Eject switch detection input. When "Lo" is input, the camcorder performs the eject operation even when the power is turned off (standby release input).
16	I	Lo	STAGE[Lo]	Cassette holder open/close detection input. "Lo" is input when the cassette holder is closed.
17	I	Hi/Lo	ME/MP[Lo]	Input to discriminate the type of tape. Hi: ME (metal evaporated) tape, Lo: MP (metal powder) tape.
18	I	Lo	WAKE UP[Lo]	Standby release input. When the camera power is turned on, "Lo" is input to release the standby mode. IC901 detects the inputs of each switch to start operation.
19	I	Lo	REC START[Lo]	Recording start/stop switch detection input.
20	I	Hi/Lo	ADP/BATT[Lo]	Power supply detection input. Hi: AC adapter, Lo: Battery.
21	I	Hi	HIBAND	Playback mode detection input. IC901 receives the playback mode detection signal sensed by IC201 (VIDEO PROCESS) and instructs IC904 (CHARA. GEN.) to generate the display signals and also transfers the operation mode data to IC201. Open for models with which only normal tapes are used.
22	I	Hi	TEST PROG.	Test program start detection input. A test program is executed when "Hi" is input.
23	I	Hi/Lo	LCD OPEN[Lo]/ CLOSE	Input to siscriminate the state of LCD panel is opened or closed. Hi: Close, Lo: Open.
24	I	Lo	AV CONT	Input to detect whether an external AV signal is input or not. "Lo" is input when an AV input cable is connected to the AV input/output connector (JK200: AV IN/OUT).
25	O	Hi	MUTE	Audio muting output. Outputs "Hi" to mute sound.
26	O	Hi/Lo	CAM[Lo]/LINE	Video processor mode control output. Outputs "Lo" during camera recording and "Hi" with an external (line) signal.
27	O	Hi/Lo	S.EDIT	Table-top VCR mode control output. The operation mode of the VCR connected to JK200 (AV IN/OUT) is controlled remotely using the pause switch. "Hi" output sets the VCR to the pause mode and "Lo" output releases the pause mode (record mode).
28	O	Hi	TRICK	Controls the video processor operation mode. Outputs "Hi" during trick play.

Pin No.	I/O	Active Level	Abbreviation	Function
29	O	Lo	OSD RESET [Lo]	Outputs "Lo" with power on and is set to open with power off to initialize IC904 (CHARA. GEN.).
30	O	Lo	TRICK	Controls the LCD control circuit operation mode. Outputs "Hi" during trick play.
31	O	Hi	C.STANDBY	Capstan motor power control output.
32	O	Lo	SW+B(VCR ON) [Lo]	Power control output. Outputs "Lo" when power is turned off.
33	O	Hi/Lo	LCD NOR/ HI[Lo]	Output to select the LCD display mode.
34	O	Lo	CAM RESET [Lo]	Camera block power supply control output. Outputs "Hi" when power is turned on and "Lo" when power is turned off to initialize the camera block (IC1104: D-µP).
35	O	Hi/Lo	f4SEL	Auto track finding (ATF) pilot signal select output.
36	O	Hi/Lo	TRK. MOD	Output to select the pilot signal from IC601 (ATF). Hi: VCO output, Lo: Playback (PB) FM signal
37	-----	-----	GND	Grounded.
38	I	Lo	SYSTEM RESET[Lo]	Microprocessor reset input. "Lo" input resets the microprocessor.
39	-----	-----	GND	Grounded.
40	O	(Pulse)	XTAL OUT 12MHz	Drive X901 to generate 12MHz main clock pulses.
41	I	(Pulse)	EXTAL IN 12MHz	
42	I	(Pulse)	D-STB(DSP)	For data communications with IC1104 (D-µP).
43	I	(Pulse)	D-DATA(DSP)	
44	O	(Pulse)	S-DATA(DS)	
45	I	(Pulse)	D-CLOCK(DSP)	
46	I	0V-5V	MODEL	Internal mode select input. (Select the NTSC(USA)/NTSC(JAPAN)/PAL etc.)
47	I	0V-5V	VCR KEY2	VCR operation switch detection input (playback, date/title).
48	I	0V-5V	SHT. DET	Input to detect the short-circuits in the power circuit.
49	I	0V-5V	BATTERY	Input to detect the battery remaining level
50	-----	-----	GND	Grounded.
51	I	-----	AVref	Reference voltage input.
52	-----	-----	AVdd	5V power input.
53	I	0V-5V	HI8MP	Hi-8 MP tape detection input.
54	I	0V-5V	REC INH	Erase prevention tab detection input.
55	I	(Pulse)	PB PILOT	Playback pilot signal (PB PILOT) input.
56	I	0V-5V	VCR KEY1	VCR operation switch detection input (rewind, fast forward, stop).
57	I	0V-5V	TRACK ADJ.	For the connection of a tracking control for adjustment. When an ATF-R jig is connected to PG601 (test plug), the variable resistor on the ATF-R jig can be used as a tracking control.
58	I	(Pulse)	EST	Take-up tape end detection inputs.
59	I	(Pulse)	ESS	Supply tape end detection inputs.
60	I	(Pulse)	PB.ENV	Playback (PB) FM signal input.
61	I	(Pulse)	RSS	Supply/take-up reel sensor inputs. Used to calculate the remaining tape and to detect reel lock.
62	I	(Pulse)	RST	
63	I	Hi/Lo	LCD REVERSE [Lo]	LCD position detection input. Hi: Normal position, Lo: Reverse position.
64	I	(Pulse)	C.SYNC	Composite sync signal input. The separated vertical sync signal is divided by two to generate the 1/2V.SYNC pulse which is used tocontrol the cylinder speed during recording (reference signal).
65	I	(Pulse)	VCO IN	Receive the signal from the VCO in IC601 (ATF) to fix the frequency of the recording pilot signal (VCO's output).
82	O	(Pulse)	VCO CONT	
66	I	(Pulse)	DPG	Tach pulse input. Feedback signal that controls the recording phase of the cylinder.

Pin No.	I/O	Active Level	Abbreviation	Function
67	I	(Pulse)	DFG	Cylinder FG (CYL. FG) pulse input. Controls the cylinder speed during recording and playback.
68	I	(Pulse)	CFG	Capstan FG (CAPST.FG) pulse input. Used for counting of the linear time counter and recording restart control (assemble recording).
69	O	Hi	LOAD	Loading motor drive outputs.
70	O	Hi	UNLOAD	
71	O	(Pulse)	EVF-CS	For LCD color EVF. Activates communications with IC2303 (EVF D/A CONV).
72	O	(Pulse)	OSD-CS	Activates communications with IC904 (CHARA. GEN.).
73	O	PWM	D.SPEED	Cylinder servo control outputs.
74	O	PWM	C.SPEED	Capstan servo control outputs.
75	I	(Pulse)	CFG	Capstan FG (CAPST.FG) pulse input. Used for counting of the linear time counter and recording restart control (assemble recording).
76	I	Lo	V-DET[Lo]	Inputs whether a battery is attached or not. "Lo" is input when the battery is detached, to shift the microprocessor to the backup mode in which the data is saved.
77	I	Hi/Lo	BATT SERIAL	Battery serial time detection input.
78	O	(Pulse)	SSB DATA	For data communications with IC904 (CHARA. GEN.), IC201 (LUMA/CHROMA PROCESS), IC401 (AUDIO PROCESS) and IC2303 (EVF D/A CONV) [For LCD color EVF]
79	O	(Pulse)	SSB CLK	
80	I	Hi/Lo	HI8/NORMAL [Lo]	Internal mode select input (Hi: Hi-8 models, Lo: models used exclusively with normal tapes).
81	I	Hi/Lo	SANYO/PANA [Lo]	Maker of the battery detection input.
83	I	(Pulse)	REMOCON	Remote operation signal input from the infrared receiver.
84	I	(Pulse)	32MHz TEX IN	Generate 32kHz sub-clock pulses.
85	O	(Pulse)	32MHz TX OUT	
86	-----	-----	GND	Grounded.
87	-----	-----	VDD	5V power input.
88	-----	-----	----------	Not used. Connected to 5V power supply.
89	O	Hi	D.REVERSE	Cylinder motor reversing control output.
90	O	Hi	C.REVERSE	Capstan motor reversing control output
91	O	Hi	REC	Output to control the video processor during recording.
92	O	Hi	T.FADE	Rapid audio fading output. Outputs "Hi" when fading is started to fade the audio signal in rapidly, synchronized with the video signal.
93	O	Hi	FE CONT	Flying erase head oscillation control output
94	O	Lo	PR CONT	Preamp activation signal. Outputs"Hi" during playback to activate the preamp.
95	O	(Pulse)	HD	Artificial H. sync signal output.
96	O	(Pulse)	ADDV+SQ	Artificial V. sync signal + video muting signal output
97	O	(Pulse)	SW30Hz[Lo]	Inverted head switching pulse output
98	O	Hi/Lo	LCD-HOLD	Controls the LCD control circuit operation mode.
99	O	(Pulse)	AUDIO30	Outputs switching pulses to IC401 (AUDIO PROCESS).
100	O	(Pulse)	D.BRAKE	Output the cylinder brake pulse.

CHAPTER 7 APPENDIX

SELF-DIAGNOSIC FUNCTION

1. OVERVIEW

The camera/recorder has the following self-diagnosic function.

- Occasional defect self-diagnostic function (A mode)
- Mechanical block self-diagnostic function (B mode)

Fig. 1-1 shows the self-diagnostic coverage range.
The self-diagnostic functions of the camera/recorder are engaged by the system control (main) µP (IC0901) which detects, memorizes and displays data related to defects in the mechanical block control system.

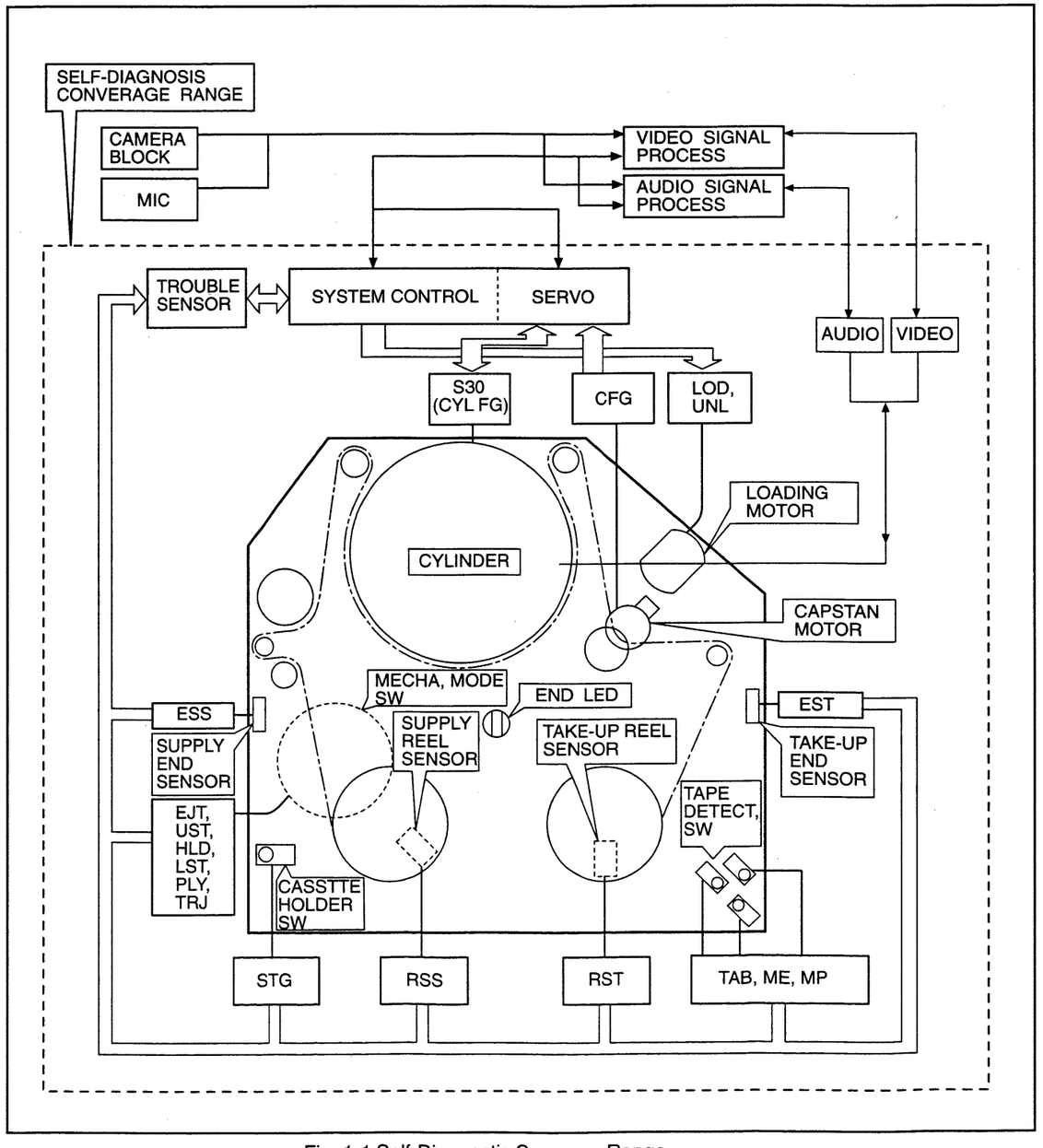


Fig. 1-1 Self-Diagnostic Coverage Range

2. DETAILS OF DISPLAY/DETECTION AND APPLICATIONS

Table 2-1 summarizes the details of display/detection of the self-diagnostic functions and their applications.
Fig. 2-1 shows the operational processes of the self-diagnostic functions.

Table 2-1 Details of Display/Detection of Self-Diagnostic Functions and their Applications

	Occasional defect self-diagnostic function (A mode)	**Mechanical block self-diagnostic**
Details of display/	The system control μ P memorizes and display detection the defect data. (If several defects have occurred, only the last defect detected is memorized.)	Displays the data for the defect that has occurred when the B mode is set.
Application	Used when the defective symptom is not reproduced during servicing.	Used to detect the cause of the defect (in the mechanical block or electrical circuits) and to determine the defective position of the mechanical block.
Detected parts	Trouble sensors · Take-up end sensor (EST) · Supply end sensor (ESS) · Take-up reel sensor (RST) · Supply reel sensor (RSS) Cylinder (S30) Capstan motor (CFG)	Trouble sensors · Take-up end sensor (EST) · Supply end sensor (ESS) · Take-up reel sensor (RST) · Supply reel sensor (RSS) Cylinder (S30) Capstan motor (CFG) Loading motor (LOD, UNL) Mechanism mode switch (EJT, UST, HLD, PLY, LST, TRJ) Tape detection switches, etc. · Erase prevention tab detection switch (TAB) · ME/MP detection switch (ME) · Hi-8 MP detection switch (MP) · Cassette holder switch (STG)
Cautions	When the rewind mode is entered, the defect data is erased.	Engage the B mode after completing the A mode. If the B mode is engaged first, the defect data may be erased.

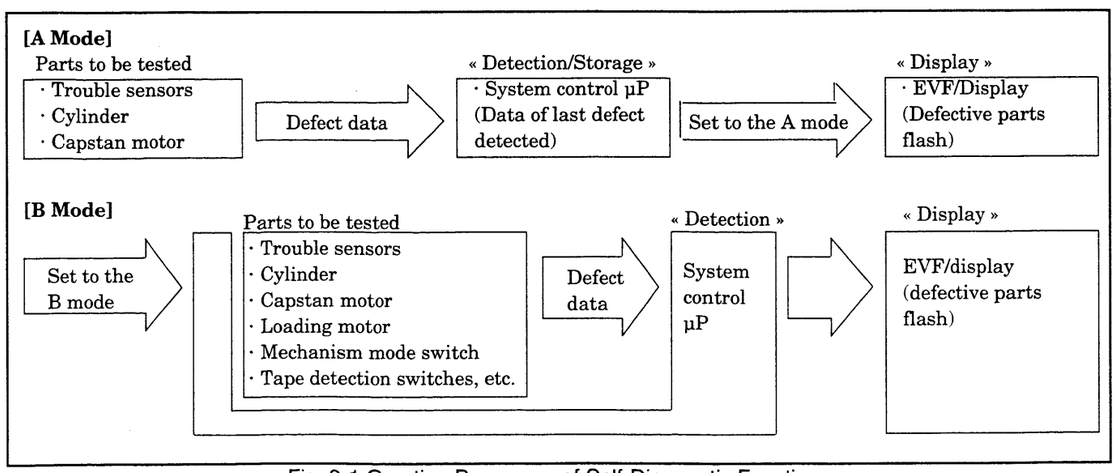


Fig. 2-1 Oeration Processes of Self-Diagnostic Functions

3. SETTING PROCEDURE AND DETAILS OF DIAGNOSIS

3.1 OCCATIONAL DEFECT SELF-DIAGNOSTIC FUNCTION (A MODE)

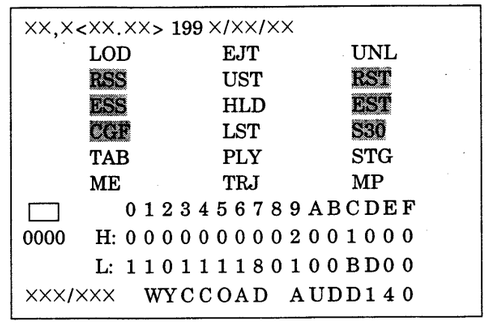
3.1.1 Setting Procedure

1) Connect (attach) a power supply (battery).

2) Set the power switch to"CAMERA" or "VIDEO".

3) Press the DATE button. [Within half a second]

4) Press the DATE and REW buttons simultaneously and hold them for 3-5 seconds.


XX,X<XX.XX> 199X/XX/XX
LOD EJT UNL
RSS UST RST
ESS HLD EST
CGF LST S30
TAB PLY STG
ME TRJ MP
0 1 2 3 4 5 6 7 8 9 A B C D E F
0000 H: 0 0 0 0 0 0 0 0 0 0 2 0 0 1 0 0 0
L: 1 1 0 1 1 1 1 8 0 1 0 0 B D 0 0
XXX/XXX WYCCOAD AUDD1 4 0

« Results of self-diagnosis »
· The shaded items flash if they are defective.
· See Table 3-1 for the results of diagnosis.

Cautions:
· Do not press any buttons other than those specified during self-diagnosis; otherwise, it may cause a malfunction.
· Only the shaded items are tested in the A mode.
· Other items are ignored.

[To release]
· Set the power switch to "OFF".
· Press the DATE and REW buttons simultaneously.

3.1.2 Results of Diagnosis

Table 3-1 summarizes the results of diagnosis and the circuits/parts deemed to be defective in the A mode.

Table 3-1 Details of A Mode Self-Diagnosis

Part	**Display**	**Results of diagnosis**	**Parts/circuits deemed to be defective**
Trouble sensors	RSS	The pulse from the supply reel sensor is defective.	· Supply reel disk · Trouble sensor (reel sensor) · IC0901
	RST	The pulse from the take-up reel sensor is defective.	· Take-up reel disk · Trouble sensor (reel sensor) · IC0901
	ESS	The pulse from the supply end sensor is defective.	· Trouble sensors (end sensor/end LED) · Q0905 · IC0901 · DC-DC converter circuit (B+ line)
	EST	The pulse from the take-up end sensor is defective.	· Trouble sensors (end sensor/end LED) · Q0905 · IC0901 · DC-DC converter circuit (B+ line)
Cylinder	S30	The SW30 (CYL. FG) pulse is defective.	· Cylinder · IC0631 · IC0901 · DC-DC converter circuit
Capstan	CFG	The CAPST. FG pulse is defective.	· Capstan motor · IC0631 · IC0901 · DC-DC converter circuit

3.2 MECHANICAL BLOCK SELF-DIAGNOSTIC FUNCTION (B MODE)

Caution: Complete the A mode before engaging the B mode.

3.2.1 Setting Procedure

1) Connect (attach) a power supply (battery).

2) Press the EJECT button to set to the eject state.

3) Press the "Hi-8 MP" switch on the trouble sensor and the DATE button and hold them, then set the power switch to "CAMERA" or "VIDEO" (Hold this state for a few seconds.) [Within 3 seconds].

4) Close the cassette lid.

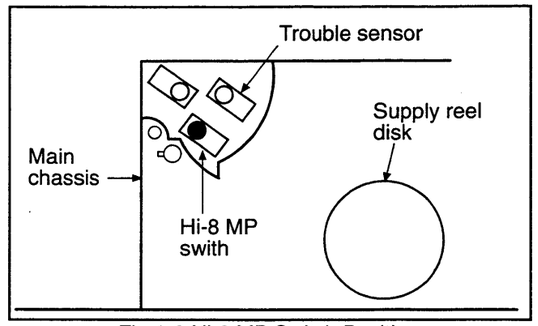
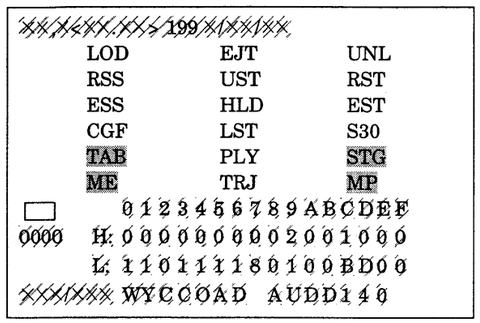


Fig.1-2 Hi-8 MP Switch Position


199
LOD EJT UNL
RSS UST RST
ESS HLD EST
CGF LST S30
TAB PLY STG
ME TRJ MP
0 1 2 3 4 5 6 7 8 9 A B C D E F
0000 H: 0 0 0 0 0 0 0 0 0 2 0 0 1 0 0 0
L: 1 1 0 1 1 1 1 1 8 0 1 0 0 B D 0 0
WYCOOAD AUDD140

« Results of self-diagnosis »

- The defective items flash.
- The shaded items are the tape detection switches and cassette holder switch which flash when they are not pressed.
- See Table 3-2 for the results of diagnosis.

Cautions:

- Do not press any buttons other than those specified during self-diagnosis; otherwise, it may cause a malfunction.
- The indications in dotted lines are not covered by the self-diagnostic functions.
- It is normal for the diagnostic procedure to end in the eject state. Do not close the cassette lid thereafter.

[To release]

- Set the power switch to "OFF".

5) The procedure ends in the eject state.
Caution: Do not close the cassette lid.

3.2.2 Results of diagnosis

Table 3-2 summarizes the results of diagnosis and the circuits/parts deemed to be defective in the B mode.

Table 3-2 Results of B Mode Self-Diagnosis (1/2)

Part	Display	Results of diagnosis (Detect display conditions)	Parts/circuits deemed to be defective
Loading motor	LOD	The loading motor is defective when running forward. (Does not load within 10 seconds.)	· Loading motor · Rotation of drive gears in mechanical block faulty. · IC0671 · IC0901 · IC0902 · Power supply (5V, B+) lines.
	UND	The loading motor is defective when runnig in reverse. (Does not unload within 10 seconds.)	
Trouble sensors	RSS	The pulse from the supply reel sensor is defective. (There is one pulse or less withinte two seconds.)	· Supply reel disk · Trouble sensor (reel sensor) · Capstan motor · IC0901

Table 3-2 Results of B Mode Self-Diagnosis (2/2)

Part	Display	Results of diagnosis (Detect display conditions)	Parts/circuits deemed to be defective
Trouble sensor	RST	The pulse from the take-up reel sensor is defective. (There is one pulse or less within two seconds.)	· Take-up reel disk · Trouble sensor (reel sensor) · Capstan motor · IC0901
	ESS	The pulse from the supply end sensor is defective. (No pulse is input for more than 100 ms continuously within two seconds.)	· Trouble sensors (end sensor/end LED) · Q0905 · IC0901 · DC-DC converter circuit (B+ line)
	EST	The pulse from the take-up end sensor is defective. (No pulse is input for more than 100 ms continuously within two seconds.)	· Trouble sensors (end sensor/end LED) · Q0905 · IC0901 · DC-DC converter circuit (B+ line)
Tape detection switches, etc.	TAB	The erase prevention tab detection switch detects the record inhibit state (OFF).	**Caution**: These switches flash when they are not pressed. It is abnormal if they flash when pressed.
	ME	The ME/MP tape detection switch detects the MP state (OFF).	
	MP	The Hi-8 MP tape detection switch detects the normal MP state (OFF).	· Trouble sensor · IC0901
	STG	The cassette holder switch detects the state where the cassette holder is not lowered (OFF).	
Capstan motor	CFG	The CAPST. FG pulse is defective. (150 pulses or less within two seconds.)	· Capstan motor · IC0631 · IC0901 · DC-DC converter circuit
Cylinder	S30	The SW30 (CYL. FG) pulse is defective. (No pulse is input normally within two seconds.)	· Cylinder · IC0631 · IC0901 · DC-DC converter circuit
Mechanism mode switch	UST	The unloading stop position detection signal is defective.	**Caution**: The positions shown on the left are detected in the order described within 10 seconds. · Mechanism mode switch · Trouble sensor · IC0901 · Defective rotation/phase of drive gears in mechanical block. · Loading motor. · Tape transport components. · Guide roller rails · DC-DC converter circuit.
	HLD	The half loading position detection signal is defective.	
	LST	The loading stop position detection signal is defective.	
	PLY	The play position detection signal is defective.	
	TRJ	The transient position detection signal is defective.	
	EJT	The eject position detection signal is defective.	

DEMONSTRATION (DEMO) MODE

This camera/recorder has a demonstration (demo) mode function.

1. SETTING THE DEMO MODE

The camcorder can be set to the demo mode following the procedure below:

1.1 SETTING CINDITIONS

1) Connect the AC adapter/charger or a fully charged battery pack.
2) Set the CAMERA/OFF/VCR switch to "OFF".
3) Do not insert a cassette.

1.2 SETTING PROCEDURE

Hold the PLAY button down and set the CAMERA/OFF/VCR switch to "CAMERA".

2. EXITING THE DEMO MODE

Perform either of the following to finish (release) the demo mode:

1) Disconnect the AC adapter/charger or battery.
2) Insert a cassette.
3) Set the CAMERA/OFF/VCR switch to "CAMERA".

3. OPERATION DURING THE DEMO MODE

Cautions:

1) The following buttons and switches cannot be used in the demo mode:
   - VCR system:
     PLAY, F.FWD, REW, REC START/STOP
   - Camera system:
     EIS, FADE, DIGITAL EFFECT, FOCUS, INST.ZOOM
2) If the AC input cable is connected while in the demo mode, the demo mode wi ll be interrupted, while the operation mode when the cable has been connected will be maintained.
3) When the CAMERA/OFF/VCR switch is set to "VCR" during the demo mode, the demo mo de will be interrupted and the operation mode when the switch has been changed will be maintained.

3.1 OPERATING SEQUENCE

The following table shows the operation sequence in the demo mode and the disp lay in the EVY (LCD) and on the monitor screen.

Caution:

Only functions provided with specific models will be demonstrated. (T his section describes models provided with all functions of this series of cam corders.)

Order	Demo mode	On-screen display	Picture	Remarks
1		No display		Continues one second.
2		DIGITAL		Displays characters every half second.
3		DIGITAL DEMONSTRATION		DEMOSNTRATION is displayed under DIGITAL
4		No display		Continues half a second.
5		DEMO		Lights for a second, and then continues to flash.
6	EIS	EIS indicator and OFF at center	Shakes noticeably in the vertical direction.	For 3 seconds
7		EIS indicator	Shaking lessens.	For 3 seconds
8		EIS indicator and OFF at center	Shakes noticeably in the horizontal di rection.	For 3 seconds
9		EIS indicator	Shaking lessens.	For 3 seconds
10	INST.ZOOM (Instant Zoom)	(DEMO flashes)		For 2 seconds
11		I.ZOOM indicator	INST. ZOOM is ON	For 2 seconds
12		(DEMO flashes)	INST. ZOOM is OFF	For 2 seconds
13		I.ZOOM indicator	INST. ZOOM is ON	For 2 seconds
14	FADE	White fade indicator	White fade in	The fade modes will switch sequences every demo mode cycle.
15			White fade out	
14'		Wipe fade indicator	Wipe fade in	
15'			Wipe fade out	
14'		Zoom fade indicator	Zoom fade in	
15'			Zoom fade out	
14'		Black-and-white (B&W) fade indicator	B/W fade in	
15'			B/W fade out	

Order	Demo mode	On-screen display	Picture	Remarks
16	16 × 9	16 × 9 indicator	16 × 9 picture	For 2 seconds
17	Negative/posi-tive inversion	NEGPOS indicator	Negative picture	For 2 seconds
18	× 130 zoom	ZM:2 indicator	Magnifies subject up to 130 times.	For 2 seconds
19	Half mirror	MIRROR indicator	Half-mirror picture	For 2 seconds
20	Mosaic	MOSAIC indicator	Mosaic picture	For 2 seconds
21	Normal		Normal picture	For 3 seconds, and then goes back to step 1.

Note: Steps 1-21 will be repeated during the demo mode.

TH MECHANISM

This describes only the differences from the "TH MECHANISM" service manual (No.6406E) issued previously.

DISASSEMBLY

2-1. Cassette holder (Fig.2-1)

1) Move the eject lever in the direction of arrow (A) and set the unit to the eject state.

Caution when reinstalling

· Reinstall the cassette holder so that section (B) of the eject lock slider is inserted into section (C) of the eject lock arm.

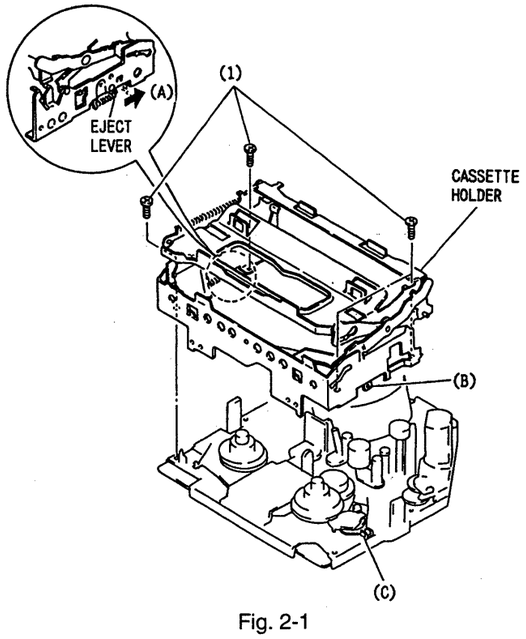


Fig. 2-1

2-3. Loading motor, loading gears (Fig.2-3)

1) Remove two screws (1) holding the loading motor.
2) Remove the loading motor and loading gears (1) and (2) from the chassis in the direction of arrow (A).

Adjustment after reinstalling

· After reinstalling the loading motor and loading gears ((1) and (2)), be sure to preform the following adjustment.
"3. PHASE MATCHING IN ASSEMBLY" in chapter 1.

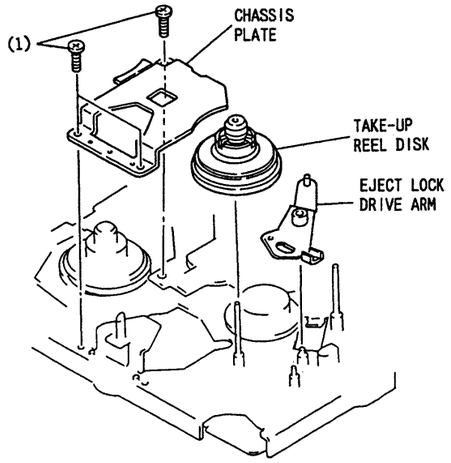


Fig. 2-3

2-12. Chassis plate, Take-up reel disk (Fig.2-13)

1) Remove screw (1) holding the chassis plate.
2) Remove the chassis plate from the chssis.
3) Pull out the take-up reel disk from the take-up reel disk shaft.

Caution when reinstalling

· When reinstalling the chassis plate, make sure the flange covers over the edges of the tension band.

2-13. Eject lock drive arm (Fig.2-13)

1) Remove the eject lock drive arm from the eject lock arm.

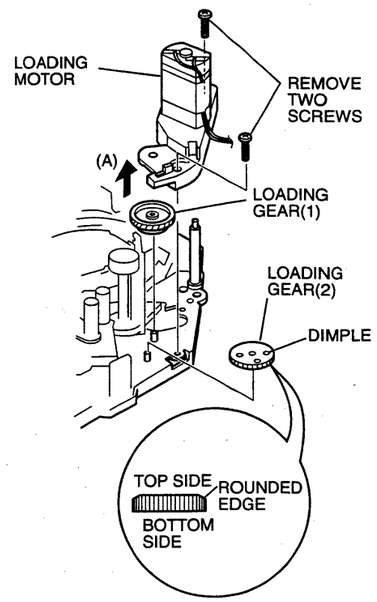


Fig. 2-13

3-2. Loading Gears and Loading Ring

(Figs. 3-2, 3-3)

Caution

· Be careful that the phase of the mechanism state switch which was matched in item 3-1 does not drift.

Procedure of phase matching in assembly

1) Align the markings of the loading ring and gears as hown in Fig. 3-2.

Caution: When reinstalling the pressure roller cam gear, set the eject lock drive arm to the position shown in Fig. 3-3 and check that pin (j) is inserted into groove (J) in the back of the pressure roller cam gear.

Advice: If it is difficult to see marking (D) on the lower loading ring, match the phase by the following procedure.

(1) Set the upper and lower loading rings to the state shown in Fig. 3-2. (Watch the guide roller fixing section.)

(2) Move the upper and lower loading rings so that holes (H) overlap each other.

(3) If holes (H) overlap each other, the phase of the loading ring is correct.

(4) If holes (K) overlap each other, the phase of the loading relay gear (4) is correct.

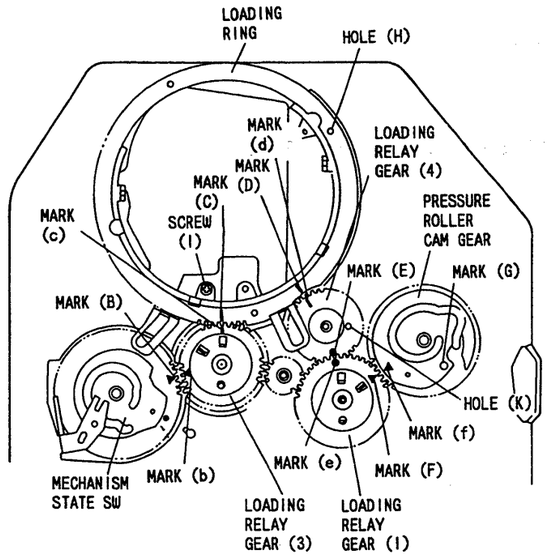


Fig. 3-2

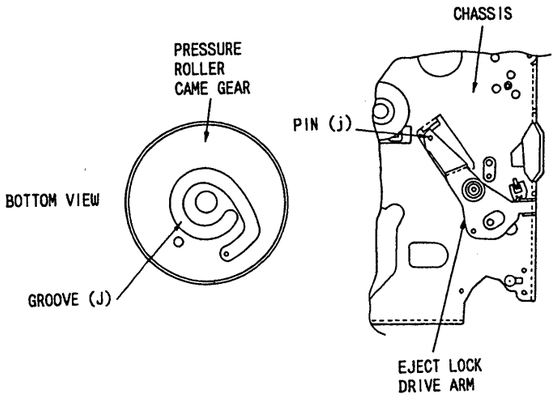


Fig. 3-3

4. PHOTOS OF MECHANISM

· Refer to these when reinstalling and perform phase matching in assembly.

4-1. Top View of Mechanism

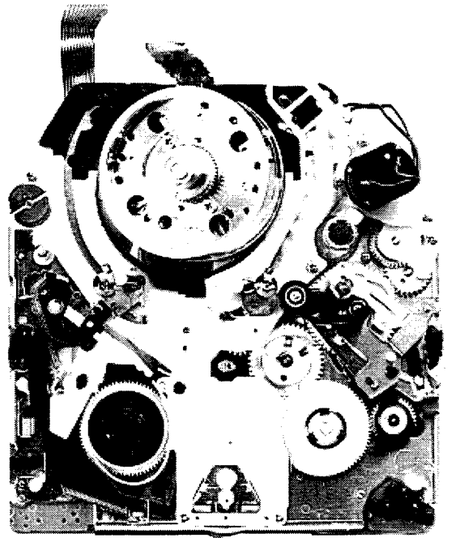


Fig. 4-1

4-2. Bottom View of Mechanism

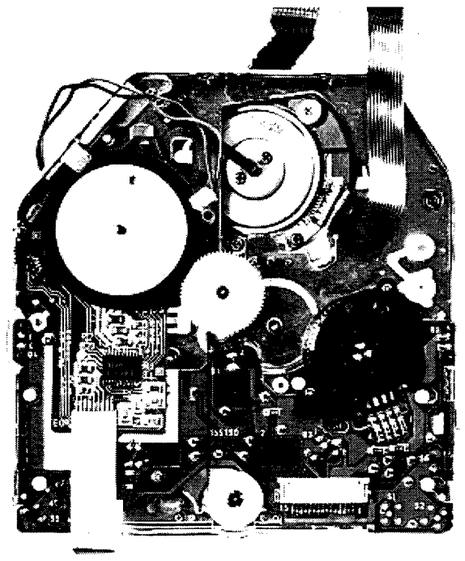


Fig. 4-2

MECHANISM ADJUSTMENT

3-3. Supply/Take-up Guide Roller Height Adjustment (Figs. 3-4, 3-5)

Caution

· Be sure to check this item after reinstalling the supply guide roller and take-up guide roller. Basically, the height of the supply/take-up guide rollers should not be adjusted. Adjust these heights only if they are abnormal.

Test equipment/jigs	Test equipment/jigs connection points	State of VCR	Adjustment point
· Alignment tape · Oscilloscope · ATF-R jig · Special driver	· Test Plug on Main board · TP1(SW25/30) on ATF-R jig · TP2(GND) on ATF-R jig · TP3(FM OUT) on ATF-R jig	· Connect the ATF-R jig to test plug. · ATF-R jig (SW1: OFF, SW3: ON, RT1: mechanical center)	· Top of guide rollers

Adjustment procedure

Caution: Before performing this adjustment, refer to Fig. 6-1 and modify the ATF-R jig.
Connect the ATF-R jig before suppling power.

1) Load an alignment tape that has been completely rewound. Press the PLAY button and hold it, then set the POWER switch to VIDEO position.
2) Connect an oscilloscope to TP3 on the ATF-R jig.
3) Synchronize the oscilloscope with TP1 (SW25/30) on the ATF-R jig.
4) Set the osilloscope to (+) slope.

Supply Guide Roller (Fig. 3-4)

5) Press SW2 on the ATF-R jig and hold it, then perform the following steps.
6) Adjust the height of the supply guide roller so the waveform is flat.
7) Adjust the voltage level control of the oscilloscope so that portion (A) of the waveform is set to 4 graduations.
8) Set SW1 on the ATF-R jig to ON.
9) Turn RT1 on the ATF-R jig counterclockwise so the voltage at point (C) on the ATF-R jig is 1.8 ± 0.1V. Then check that point (B) of the waveform is set to 3 graduation.
10) Adjust the height of the supply guide roller so minimum amplitude of the waveform is set to NTSC:2.3 ± 0.3/PAL:2.5 ± 0.3 graduations.

Take-up Guide Roller (Fig. 3-5)

11) Set the oscilloscope to (-) slope.
12) Adjust the voltage level control of the oscilloscope so that portion (B) of the waveform is set to 4 graduarions.
13) Turn RT1 on the ATF-R jig counterclockwise so the voltage at point (C) on the ATF-R jig is 1.8 ± 0.1V. Then check that point (B) of the waveform is set to 3 graduation.
14) Adjust the height of the take-up guide roller so the minimum amplitude of the waveform is set to NTSC:2.5 ± 0.3/PAL:2.3 ± 0.3 graduations.

Caution: After adjustment is completed, be sure to reverse the modification to ATF-R jig.

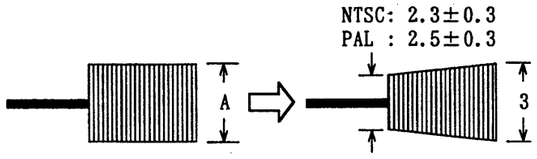


Fig. 3-4

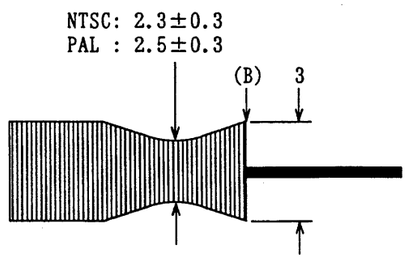


Fig. 3-5

4. ADJUSTMENT AFTER REPLACING THE CYLINDER (Figs. 4-1, 4-2)

When the cylinder is replaced, the height relative to the guide roller drifts, therefore the tape transport system and servo circuit should be adjusted. Check and adjust in the following order.

Test equipment/jigs	Test equipment/jigs connection points	State of VCR	Adjustment point
· Alignment tape · Oscilloscope · ATF-R jig · Special driver	· Test Plug on Main board · TP1(SW25/30) on ATF-R jig · TP2(GND) on ATF-R jig · TP3(FM OUT) on ATF-R jig	· Connect the ATF-R jig to test plug. · ATF-R jig (SW1: OFF, SW3: ON, RT1: mechanical center)	· Top of guide rollers

Adjustment procedure

Caution: Before performing this adjustment, refer to Fig. 6-1 and modify the ATF-R jig.

1) Load an alignment tape that has been completely rewound. Press the PLAY button and hold it, then set the POWER switch to the VIDEO position.
2) Connect an oscilloscope to TP3 on the ATF-R jig.
3) Syncronise the oscilloscope with TP1(SW25/30) on the ATF-R jig.
4) Set the oscilloscope to (+) slope.
5) Press SW2 on the ATF-R jig and hold it, then perform the following steps.
6) Adjust the voltage level control of the oscilloscope so that portion (A) of the waveform is set to 4 graduations.
7) Set SW1 on the ATF-R jig to ON.
8) Turn RT1 on the ATF-R jig counterclockwise so that portion (A) of the waveform is set to 3 graduations.
9) Adjust the height of the supply guide roller so the minimum amplitude of the waveform is set to NTSC:2.3 ± 0.3/PAL:2.5 ± 0.3 graduations. (See Fig. 4-1)
10) If this cannot be confirmed, adjust the height of the supply guide roller, referring to "3-3. Supply/ Take-up Guide Roller Height Adjustment".
11) Set the osilloscope to (-) slope.
12) Turn RT1 on the ATF-R jig counterclockwise so the voltage at point (C) on the ATF-R jig is 1.8 ± 0.1V. Then check that point (B) of the waveform is set to 3 graduation.
13) Check that the minimum amplitude of the waveform is set to NTSC:2.3 ± 0.3/PAL:2.5 ± 0.3 graduations. (See Fig.4-2)
If this cannot be confirmed, adjust the height of the take-up guide roller, referring to "3-3. Supply/ Take-up Guide Roller Height Adjustment".
14) Perform the following electrical adjustments.
Head switching point adjustment
Record luminance/chroma level adjustment

Caution: After adjustment is complete, be sure to reverse the modification to ATF-R jig.

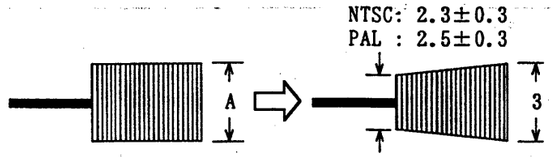


Fig. 4-1

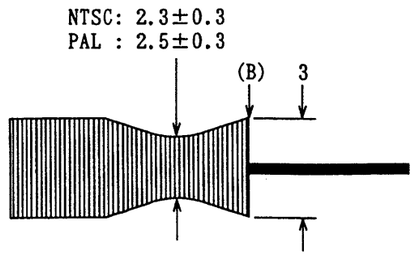


Fig. 4-2

5. CHECKING THE TORQUE

There are two types of cassette torque meter.
Choose the applicable one for the measurement to be performed.

Item	VCR mode	Measured reel disk	Torque value	Torque cassette used
Take-up torque	Playback	Take-up	7-13 g-cm	SRK-8T-212 SRK-8T-232
Rewind torque	Reverse search	Supply	25-37 g-cm	SRK-8T-232
Take-up brake torque	Reverse search to stop	Take-up	10 g-cm ro more	SRK-8T-212 SRK-8T-232
Slack removal torque	Unloading	Supply	25-37 g-cm	SRK-8T-232

6. MODIFICATION TO ATF-R JIG (Fig. 6-1)

Caution

The ATF-R jig must be modified for the following adjustments.
After completing these, be sure to reverse the modification.

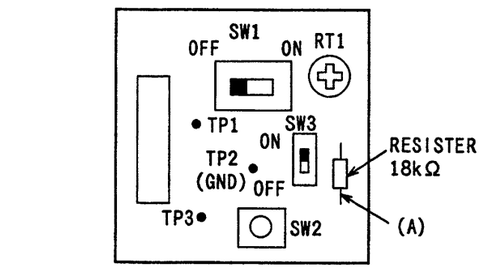
- 3-3. Supply/Take-up Guide Roller Height Adjustment
- 4. ADJUSTMENT AFTER REPLACING THE CYLINDER

Procedure

1) Short terminal (A) of the resister on theATF-R jig and pin 1 (5V) of the connector.

Note: This modification makes SW2 on the ATF-R jig a PCM area observation switch.

Caution: Use a shorting clip, etc. to short the parts; this can be removed easily after adjustment is completed.
A modification is also necessary in the same way when the ATF jig is used.



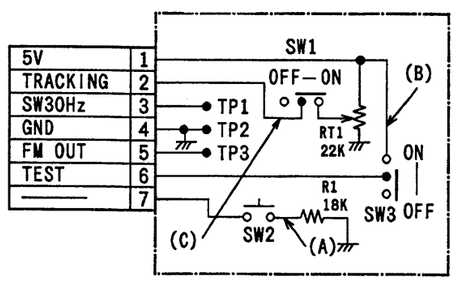


Fig. 6-1

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VM-H835LA

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